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TASMANIAN OFFICIAL RECORD.

1892.

BY

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ALSO
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1892.

TASMANIA

Scale 15 miles to an inch

10 5 0 10 20 30

BASS STRAIT

BANK'S STRAIT

145 146 147 148

40 41 42 43

WELLINGTON
MONTAGU
RUSSELL
DORRINGTON
DERWENT
LINCOLN
WESTMORLAND
CORNWALL
SOMERSET
CLAMORGAN
CUMBERLAND
FRANKLIN
MONTGOMERY
ARTHUR
BUCKINGHAM
MONMOUTH
PEMBROKE
KENT

FLINDERS ISLAND
CAPE BARREN I.
CLARKE I.
ROBBINS I.
HUNTERS BARREN Is ISLANDS
THREE HUMMOCK Is
WOOLNORTH BLOCK
CIRCULAR Hd BLOCK
EMU BAY BLOCK
SURREY HILLS
MIDDLESEX PLAINS
LAUNCESTON
HOBART
NEW NORFOLK
RINGAROOMA
GEORGE TOWN
BEACONSFIELD
ULVERSTONE
DEVONPORT
QUEENSTOWN
STRAHAN
ZEEHAN
CORINNA
WATERHOUSE
BOOBYALLA
SWANSEA
TRIABUNNA
ORFORD
SORELL
RICHMOND
BRIGHTON
OATLANDS
CAMPBELL TOWN
ROSS
OYSTER BAY
FREYCINETS PENINSULA
SCHOUTEN Is
TASMANS PENINSULA
PORT ARTHUR
FORESTIERS PENINSULA
MARION BAY
MARIA
ADVENTURE BAY
BRUNI
STORM BAY
CHANNEL
D'ENTRECASTEAUX CHANNEL
S.W. PASSAGE
Great Lake
Arthurs Lakes
Lake Sorell
Lagoon of Islands
Clarence Lagoon
Central Plains
Western Lagoon
Eastern Marshes
Tin Hut Marsh
Native Plain
Hobbs Lagoons
Southport Lagoon
Recherche Bay
Macquarie Harbour
Port Davey
Bathurst Harbour
New Harbour
Kelcom B.
Kelly Basin
Hannant Inlet
Birch Inlet
Fresh Lagoons
Sandy C.
Cape Sorell
Pt. Hibbs
Elliott Cove
Granville Harb.
Trial Bay
Rocky Pt.
Pt. St. Vincent
Maatsuyker or De Witt Is.
Tasmans Hd.
The Friars
Arched I.
Flinders I.
Babel I.
Cameron Inlet
Great Dog I.
Vansittart I.
Franklin Inlet
Banks Strait
Eddystone Pt.
C. Naturaliste
Bay of Fires
Georges Bay
St. Helens
St. Helens Id.
Ansons B.
Waterhouse I.
C. Portland
Foster I.
Swan Id.
Long I.
Harley Pt.
C. Barren
Armstrong Channel
Cone Pt.
Passage I.
Forsyth I.
Morriarty B.
Sloping Main
Mersey Bluff
Devonport
Ulverstone
Penguin
Burnie
Wynyard
Table Cape
Port Sorell
Port Dalrymple
George Town
Low Head
Light House
Swan Id.
Waterhouse Pt.
Ringarooma Bay
Boobyalla
Eddystone Pt.
Mt. Cameron
Mt. William
Gladstone
Derby
Branxholm
Scottsdale
Winnaleah
Fingal
Avoca
Campbell Town
Ross
Oatlands
Tunbridge
Swansea
Triabunna
Orford
Buckland
Sorell
Richmond
Brighton
Bridgewater
New Norfolk
Hobart
Kingston
Margate
Sandy Bay
Battery Point
Port Arthur
Eaglehawk Neck
Tasmans Peninsula
Forestiers Peninsula
Marion Bay
Maria
Schouten Is.
Freycinets Peninsula
Oyster Bay
Great Swanport
Little Swanport
Ringarooma
Derby
Scottsdale
Branxholm
Winnaleah
Fingal
Avoca
Campbell Town
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Eaglehawk Neck
Tasmans Peninsula
Forestiers Peninsula
Marion Bay
Maria
Schouten Is.
Freycinets Peninsula
Oyster Bay
Great Swanport
Little Swanport

REFERENCE

Towns settled and partially so — DELORAINE
Town Reserves — EBRINGTON
Railways constructed and being constructed
Railways proposed
Roads
County boundaries
Alienated Lands — Colored
Mineral Lands — Gold
" " — Silver
" " — Tin
" " — Coal

R. Bennett Lithographer, Lands Department, Hobart Tasmania. January 1891

Compiled and drawn by Leventhorpe Hall

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PREFACE TO THIRD ANNUAL PUBLICATION.

ALTHOUGH some portions of the historical and descriptive matter of the Official Record are of a permanent character, and are scarcely affected by current events, yet the greater part is so intimately intertwined with the ever-altering present by tabular contrasts and comparisons that it was found to be impossible to confine succeeding issues to the more purely statistical sections—as suggested by some friendly critics—without impairing its usefulness as a source of reference with respect to the more important matters relating to the Colony. It is hoped, however, that the attention bestowed upon classification will obviate any difficulties that might arise from the necessity of bringing together in one volume such a variety of subjects.

In statistical matters relating to a particular colony there are two dangers to be avoided. Bare statistics of any one place or year, however correctly or elaborately given, lack colour or fail to impress the mind with their local significance or relative importance; that is, by themselves, they are devoid of "perspective," so to speak. On the other hand, an accumulation of unimportant local statistical details, or the introduction of an undue proportion of the details of matters pertaining to foreign countries, however valuable in themselves, may have the effect of destroying to some extent the local colour and usefulness of the work, and thus the important local matters may be buried or obscured by the crowding of matters which are unimportant or have little local significance. It is scarcely possible to avoid altogether either of these dangers successfully; but the arrangement and classification of the present work is designed to throw the fullest light upon local subjects of greatest importance from the present standpoint of a Tasmanian observer. Thus, as in the perspective of a landscape, it has been attempted to form the necessary boundaries corresponding in definition to the distance, middle, and foreground of a picture. Accordingly, the statistical details of foreign countries are properly restricted to the grand contour lines; Australasian matters coming nearer to the standpoint of the local observer, and often touching its most important local details, have their outlines brought more prominently into view, as

in the middle-ground of a picture; while, to heighten the effect, the local general features of the present are depicted with all the necessary fulness of detail, as in the foreground of our imaginary landscape.

A great deal of misconception still continues to exist in financial circles with respect to the growth of the Public Debt of the Australasian Colonies. It is entirely overlooked that in these Colonies the State, in addition to the ordinary functions of government, as in the United Kingdom, has to undertake a very much larger portion of the field of industry—notably, the functions of the carrier, involving, of necessity but with advantage, the construction, maintenance, and working of railways in old and new centres of development.

Nearly the whole of the present Public Debt of Australasia has been absorbed by *investments* in this direction, and such investments—unlike Public Debts incurred for war purposes—multiply the existing wealth, and can only cease or be arrested with the cessation or arrest of the further industrial progress of the Colonies.

In the United Kingdom the investments in railway construction and equipment, now amounting to £897 millions, have increased at the rate of £18·3 millions each year for the last 30 years, and even at the rate of £16·9 millions each year during the last ten years. The capital actually borrowed by railway shareholders for such purposes, during the last ten years, amounts to £107·6 millions, or at the rate of £10·7 millions per year. What would be said if this form of investment or such borrowing was a menace to the financial stability of the United Kingdom?—for this railway investment alone absolutely exceeds the provision for similar purposes in Australasia (with an area to open of fully 26 times the size of the United Kingdom) by £7·6 millions per year during the last decade; and, relatively, this excess of provision by English railway shareholders, over similar provision by Australasian Governments during the same period, amounts to £13·7 millions per year per 100 square miles.

To aid in clearing away these and other misconceptions, so dangerous as regards the progress or fame of Australasia, additional tables and observations have been introduced in the present issue of the Official Record, notably the following :—

Scope of the functions of Government in Tasmania and the United Kingdom compared... pp. 46–48

Results of the working of Australasian Government Railways ..... pp. 286–290
Wealth of various Countries compared ..... pp. 318–320
Public Debt and Railways ..... pp. 445–446
Ratios of Increase in Population, Revenue, and Railway Investments in various Countries during the Five Decades ending in 1890..... pp. 447–449
Consumption of Alcoholic Drinks and the amount of Insanity in Australasia shown to be much less as compared with the United Kingdom or with the average of Europe ... pp. 410-412

Important additions have also been made in other matters relating to Vital Statistics, Production, and the Progress of Population in Tasmania and other Australasian Colonies.

Statistical Department,
Hobart, 1st January, 1892.

PREFACE TO FIRST ANNUAL PUBLICATION.

For some time past the want of a handy official book, specially relating to Tasmania and its affairs, has been greatly felt. Hitherto the only authoritative information furnished by the Statistical Office was contained in the Report prefixed to the bulky volume of yearly statistics, and was solely restricted to the analyses of tables relating to departmental, economic, and social matters. That work is still most necessary as a source of reference, but it is too costly and somewhat cumbersome; and it lacks information much sought after bearing upon Early History, Physical Description, Natural Resources—Mineral, Animal, and Vegetable—Constitution and Government, Crown Lands available for selection, and other interesting subjects.

By the desire and encouragement of the Honorable P. O. Fysh, Premier and Chief Secretary, the Author has endeavoured to meet all these wants in the present volume; and whatever defects may be apparent in this initial effort, he hopes that its purpose will, in a great measure, be fulfilled, and that it will be the means of diffusing useful information about the Colony and its rich natural resources.

The Author is indebted to the Statisticians of the various Colonies of Australasia and Canada for much valuable matter relating to their respective countries. He is under special obligation for material assistance to the following eminent authorities; viz.—Dr. Giffen, Board of Trade Department, Whitehall; Messrs. Henry Heylyn Hayter, C.M.G., Victoria; T. A. Coghlan, A.M.I.C.E., New South Wales; F de Stein (Almanach de Gotha); J. Scott Keltie (Statesman's Year Book); S. C. D. Roper, Agricultural Department, Canada, (Statistical Abstract and Record).

For local information on special subjects the Author's thanks are due to the following gentlemen; viz.—Colonel Legge, R.A., Commandant of Local Forces; Messrs. W. F. Ward, A.R.S.M., Government Analyst; E. A. Counsel, Deputy Surveyor-General; F. Belstead, Secretary of Mines; W. T. Strutt, Government Printer; and to many other persons not here specially mentioned.

Statistical Department,
Hobart, 30*th December*, 1889.

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CORRIGENDA ET ADDENDA.

NOTE.—Unfortunately, owing to extraordinary pressure of work caused by Census and other matters, the list of errors uncorrected in this year's issue is larger than usual.

Page 18, line 10, *for* unfavourably *read* favourably.
Page 80, line 27, *for* chracterise *read* characterise.
Page 82, line 5 from bottom, *for* intruisive *read* intrusive.
Page 84, line 34, *for* Pterris *read* Pteris.
Page 131, lines 25–26, *after* depth^2 omit the phrase *multiplied by itself.*
Page 145, line 9, *for* have *read* has.
Page 160, line 12 from bottom, *for* Aussonii *read* Ausonii.
Ditto, ditto, *for* Carrasius *read* Carassius.
Ditto, also include *Salmo Levenensis.*
Page 174, last line, *for* 38·13 *read* 58·13.
Page 185, omit footnote beginning with the words * *These figures, &c.*
Page 201, line 21, *for* 24 *read* 45.
Page 214, line 33, *for* bears *read* bear.
Page 219, line 12, *for* indicies *read* indices.
Page 231, line 7, *for* shows *read* show.
Page 233. In column headed "Percentage of Females to Males" omit 100·00 opposite ages under 5 and 65 to 70.
Page 265, line 13, *for* 66,000,000 *read* 60,000,000.
Page 285, line 16, *for* 138·3 *read* 60·51.
Page 286, heading of fourth column lower table, *for* Actual on miles *read* Trains per mile per day.
Page 314, line 6 from bottom, *for* is *read* are.
Page 314–315. Paragraph commencing 14 lines from bottom of page 314—"Mulhall and others," and closing on 4th line page 315, has been displaced; should precede table at top of page 315.
Page 318, line 4 from bottom, *for* rates *read* ratio.
Page 319, line 5 from bottom, *for* indicies *read* indices.
Page 321, line 25, *for* is *read* are.
Page 333, insert *s. d.* at the head of each column in table.
Page 335, line 7, column 1, *for* 96·10 *read* 86·9; column 4, *for* 87·5 *read* 87·11.
Page 336, in heading Revenue and Expenditure *omit* and.
Page 364, line 9, *for* 1880 to 1889 *read* 1875 to 1890.
Page 367, first table, Figures relating to 1886–89 refer to Wheat Exports to the United Kingdom only.
Ditto, second table, Figures relating to 1886–89 refer to Exports to the United Kingdom only.
Page 372, *read* for each pair of columns the years indicated on preceding page.
Page 375, top of page, for figures given *read*—Capital, £23,006 millions; Grain, £1091 millions; Meat, &c., £2857 millions; Grain and Meat, £3948 millions.
Page 407, line 10, *for* are *read* is.
Page 413, line 4 from bottom, *for* 806 *read* 802.
Page 418, line 8 from bottom, *for* 98 per cent. *read* ·98 per cent.
Page 435, line 1, *for* rates *read* rate.
Page 439, Progress Table heading, *for* during the two Quinquenniads *read* since 1850.

CHAPTER I.

General Physical Outline.

The Island of Tasmania is situated in the Southern Hemisphere, between the parallels of 40° 33′ and 43° 39′ South latitude, and between 144° 39′ and 148° 23′ meridian of East longitude, and corresponds nearly with Southern France and Northern Italy in Northern latitude. It is irregularly heart-shaped, and occupies an area of 26,215 square miles, *i.e.*, nearly the area of Scotland, or about equal to Belgium and Switzerland taken together. It is bounded on the north by the shallow and narrow Bass Strait, which separates it from the south-eastern extremity of the Continent of Australia; while on its western, southern, and eastern sides its shores are exposed to the roll of the great Southern Ocean.

Nearly forty years ago its general physical features were most graphically described by Count Paul de Strzelecki, ("Physical Description of New South Wales and Tasmania," pp. 462, 8vo.—London, 1845); and, soon after, many of its geological features were again briefly sketched by the late J. Beete Jukes, ("A Sketch of the Physical Structure of Australia," pp. 95, 8vo.—London). Although the extended researches of many local observers since that time have added very considerably to our knowledge of the physical details of Australia and Tasmania, the descriptions of the main features as recorded by the two accomplished observers already referred to are wonderfully accurate, and even as regards local details are still, so far as they extend, most valuable sources of reference.

The main axis of the Great Cordillera[a] bordering the eastern coast line of Australia may be traced across Bass Strait in the chain of Islands forming the Furneaux and Kent's Group, which almost continuously link Tasmania with Wilson's Promontory, the nearest and most southerly part of the Australian mainland.

From Wilson's Promontory its course may be traced in a similar manner along the whole eastern border of Australia, and even across the Torres Straits to New Guinea, not by an uninterrupted elevated mountain chain, but, as described by Mr. Jukes, it is made up of many masses of various characters; sometimes peaked and serrated ridges; sometimes detached hills rising from slightly elevated ground; sometimes great table-lands, which, when composed of the prevailing diabasic greenstone, often end towards the sea in nearly perpendicular escarpments; and sometimes gently sloping plains, furrowed by innu-

[a] So termed originally by Sir Roderick Murchison.

merable precipitous gullies and ravines. Large lateral spurs often diverge on either hand from the central portion of the chain, and, especially on its seaward side, appear like separate and independent mountain masses.

Tasmania is wholly occupied by the ramifications of this chain, and, in itself, it may be said to embrace one and all of its characteristic features.

If we take our stand near Lake Fergus, to the East of Lake St. Clair, we find that we are situated nearly in the centre of an extensive plateau—a smaller Tasmania—with an elevation, especially on the northern side, of between three and five thousand feet above sea level.

This elevated plateau extends from Dry's Bluff in the north-west to the Denison Range in the south-west, and although often receding at points adjacent to the sources of the principal rivers, invariably presents a bold crested front to the north, west, and east. At its greatest elevation it is comparatively level, and contains many extensive fresh-water basins, such as Lake Augusta, Lake St. Clair, Lake Sorell, Lake Echo, Arthur's Lake, Lake Crescent, and the Great Lake: the latter is estimated to be above 90 miles in circumference. The marginal crests of this mountain table-land, which are composed principally of diabase, and are known locally as "Tiers," have a very commanding aspect in the neighbourhood of Longford, Westbury, Deloraine, and Chudleigh.

The extent of the principal elevated plateau, which determines the northern, western, and southern drainage slopes of the Island, is best appreciated when we consider that it maintains its general altitude in a westerly direction from Dry's Bluff (4257 feet) on the north to Cradle Mountain (5069 feet) in the north-west, a distance of nearly 50 miles; from Dry's Bluff in a south-westerly direction to Denison Range, a distance of over 60 miles; and from Dry's Bluff to Table Mountain (3596 feet) in a southerly direction, a distance of above 43 miles.

This plateau itself again rests upon a more extended table-land, composed mainly of metamorphic schists or slates. The level of this table-land stretches westward—including the Middlesex Plains, the Hampshire Hills, and the Emu Plains—and maintains an altitude of 1200 to 2000 feet. Its limits follow the coast-line more or less closely, the space between it and the sea often broadening out into low-lying tracts, not much raised above the sea level. Here and there, rising abruptly from its surface, are to be seen isolated peaks chiefly of schistose formation, the most characteristic examples of which are Mount Bischoff (2598 feet), Valentine's Peak (3637 feet), Mount Tor, and Mount Pearse.

Ridges and plateaus of a similar character, more or less isolated, such as Ben Lomond (5010 feet) and Mount Wellington (4166 feet), are to be found in the north-east and south-west of the Island.

Towards the extreme west and south, granites, metamorphic mica and quartzose schists, with overlying slates, grits, and limestone, of Cambro-Silurian age, reappear again and again in anticlinal and synclinal ridges, which trend north and south, the most characteristic being the Huxley, Owen, Sedgwick, Franklin, and Arthur Ranges. These rocks may also be seen following the south coast, and evidently

occupying nearly all that extensive mountain region to the south of the River Huon.

Settlement of population[a] has taken place principally among the plains and lower levels of the North-western, Midland, and South-eastern parts of the Island, following, in the main, the rocks of Tertiary and Mesozoic age. In the recent Tertiary period the soils of these plains and valleys have been greatly enriched by extensive outbursts of basalt, with accompanying tuffs. These comparatively level sheets of basalt are often of a great extent in the Midland, North-western and North-eastern Districts, and there is ample evidence to show that, as in France and other parts of the world, they are invariably intimately associated with the ancient Tertiary lake systems. These basalts produce a very rich chocolate soil; and were it not for their influence the greater part of what is now the most fertile part of the Island would have been comparatively poor, or altogether sterile.

The climate, upon the whole, is exceptionally genial, and the appearance of the Island throughout is wonderfully beautiful, with its open plains, bordered by far-extending precipitous mountain tiers; its isolated shaggy peaks and wooded ranges: and its many noble rivers and lakes. Its coasts for the most part, especially towards the south, are bold, and frequently indented with splendid bays and harbours (such as the Derwent, where Hobart, the capital, is situated), affording ample shelter and safe anchorage for ships. On the western side one is reminded of scenes in the Highlands of Rosshire and Invernesshire in Scotland, from the picturesque character of the blue, white, and pinkish crystalline peaks and the fantastic outlines of the mountain ranges, which rise abruptly to a height of from 2000 to nearly 3000 feet above the Button Grass[b] Plains.

The vegetation which prevails among the older schistose rocks of the west and extreme south presents a totally different appearance to that which prevails in the more extensively settled districts of the East.

The western vegetation, as compared with that of the east, presents as marked a contrast as do the prevailing rocks upon which it flourishes. The characteristic trees and shrubs of the west include the following genera; viz.—*Fagus*, *Cenarrhenes*, *Anodopetalum*, *Eucryphia*, *Bauera*, *Boronia*, *Agastachys*, *Richea*, *Telopea*, *Grevillea*, *Orites*, *Athrotaxis*, *Dacrydium*, *Phyllocladus*.

On the eastern side the plains and rocky ridges, where not artificially cleared, are occupied by shaggy and often sombre forests, mainly composed of the following prevailing genera; viz.—*Eucalyptus* (Gum Tree), *Casuarina*, *Bursaria*, *Acacia*, *Leptospermum*, *Drimys*, *Melaleuca*, *Dodonea*, *Notolea*, *Exocarpus*, *Hakea*, *Epacris*, *Xanthorrhœa*, *Frenela*. The mountain slopes and ravines of the east have a vegetation well marked. In character it is more akin, and in many cases identical with that of the west. The Tree Fern (*Dicksonia Antarctica*) in the mountain ravines is especially remarkable. The following genera are also found in such position in great luxuriance; viz.—*Fagus*, *Anopterus*, *Phebalium*, *Eucalyptus*, *Richea*, *Cyathodes*, *Pomaderris*, *Prostanthera*, *Boronia*, *Gaultheria*, *Correa*, *Bedfordia*, *Aster*, *Archeria*, *Atherosperma*, *&c.*

[a] Population, 31st December, 1889, 151,450. [b] *Gymnoschœna sphærocephalus.*

In the extreme west the trees and larger shrubs do not appear to ascend the schistose rocky mountain slopes to the same height as in the greenstone mountain slopes of the central and eastern parts.

The flora and fauna as a whole are almost identical with the flora and fauna of the Continent of Australia, and there is, even now, sufficient evidence to show that both have been derived immediately from ancestors which at least had established themselves in Australia and Tasmania during and possibly even prior to the dawn of the Tertiary Period.

Meteorology.

There are as yet only nine stations established where a complete series of meteorological observations are systematically carried out; all of which, with the exception of two stations—Oatlands, altitude 1337 feet, Waratah, 2000 feet altitude—are situated along the seaboard at low levels, ranging from 15 feet to 160 feet altitude. Three of the latter—Launceston, Low Head, and Circular Head—are situated along the northern seaboard within the influence of the warm currents of Bass Strait; one—Falmouth—situated on the eastern seaboard; two—Hobart and Southport—situated towards the south, encircled by the projecting tongues of land which enclose Storm Bay and D'Entrecasteaux Channel; and one—Corinna—exposed to the colder western oceanic currents.

Besides these, however, the Government Meteorologist (Captain Short, R.N.) has recently largely increased the number of stations where observations are confined to rainfall. The number of these stations in the year 1890 was 52, including the more fully equipped stations. These are widely distributed throughout the Island at levels varying from 15 to 2000 feet altitude.

The results, as might be expected, vary greatly in mountainous plateaux and low-lying plains and valleys, accordingly as the stations are situated in the sub-alpine humid regions of the west, or along the milder and drier regions of the north, east, and south.

The following is a condensed tabulation of the results for the year 1890:—

	Height above sea level	Temperature in the Shade.		
		Max.	Min.	Mean.
	Feet.	°	°	°
Northern Seaboard—				
Launceston	67	97·5	24·5	55·8
Low Head	25	83·0	31·5	56·7
Circular Head	64	80·0	33·5	56·1
Inland (Midland)—				
Oatlands	1337	94·0	22·0	51·4
Eastern Seaboard—				
Hobart	190	97·8	31·8	55·3
Southport	20	95·0	27·0	52·6
Falmouth	30	94·0	28·0	54·3
Western Seaboard—				
Corinna	15	97·0	27·0	54·0
Inland (Western)—				
Waratah	2000	88·0	23·0	50·5

	Mean Atmospheric Pressure.	Days on which Rain fell.	Amount of Rainfall.	Mean relative Humidity.	Clouds, Amount.
Northern Seaboard—	Inches.	No.	Inches.		(0–10)
Launceston	29·936	122	33·86	0·78	4·0
Low Head	29·990	127	40·50	0·80	4·3
Circular Head	29·966	179	39·00	0·75	5·4
Inland (Midland)—					
Oatlands	29·926	98	23·48	0·74	5·6
Eastern Seaboard—					
Hobart	29·892	173	27·51	0·78	6·5
Southport	29·946	194	45·71	0·86	5·6
Falmouth	29·940	108	45·42	0·73	5·3
Western Seaboard—					
Corinna	29·935	173	69·50	...	5·3
Inland (Western)—					
Waratah	29·883	152	76·45	0·83	6·2

RAINFALL AT VARIOUS STATIONS, 1890.

Station.	Height.	Wet Days.	Rainfall.	Max. Month.		Min. Month.	
Northern Seaboard—	Ft.		In.		In.		In.
Swan Island	...	124	32·50	June	6·41	Jan.	0·78
Ulverstone	...	175	56·41	,,	10·51	,,	0·63
Boobyalla	...	...	...	...		...	
Low Head	25	127	40·50	June	8·81	Jan.	0·42
Launceston	67	122	33·86	,,	6·28	,,	1·17
Latrobe	...	103	53·44	,,	10·12	,,	1·12
Emu Bay	...	128	36·37	,,	6·84	,,	0·32
Circular Head	64	179	39·00	Oct.	5·94	,,	0·57
Black River	...	150	47·50	,,	8·69	,,	0·63
Windermere	...	123	40·45	June	7·26	,,	0·60
Eastern Seaboard—							
Apslawn	...	97	45·04	,,	12·14	,,	0·29
Falmouth	30	108	45·42	,,	11·05	,,	0·14
Swansea	...	93	44·79	,,	14·24	Sept.	0·70
Cambridge	...	...	29·56	,,	5·41	May	0·72
Clarence Plains	...	115	28·52	,,	5·88	April	0·97
Botanical Gardens, Hobart	...	128	25·99	,,	5·58	Jan.	0·69
Mount Nelson	...	133	28·68	,,	6·48	,,	0·89
Franklin	...	153	32·52	Oct.	6·13	,,	0·73
Carnarvon	...	159	47·35	Mar.	6·04	,,	1·15
Eaglehawk Neck	...	136	38·22	June	7·20	,,	0·93
Hobart	190	173	27·51	,,	5·37	,,	0·74
Southport	...	194	45·71	,,	7·42	May	1·18
South Bruni	...	212	43·33	Aug.	6·68	Jan.	1·61
St. Helen's	...	125	49·20	June	13·08	,,	0·29
Western Seaboard—							
Cape Grim	...	177	43·18	Oct.	6·62	,,	0·63
Corinna	15	173	69·50	Aug.	11·08	May	1·52
Reminé	...	...	...	...		...	
Zeehan	...	...	...	...		...	
Strahan	...	160	51·39	Oct.	10·08	Feb.	1·10

RAINFALL—*continued.*

Station.	Height.	Wet Days.	Rain-fall.	Max. Month.		Min. Month.	
Inland (Western)—	Ft.		In.		In.		In.
Castra	...	152	58·88	June	9·42	Jan.	1·02
Waratah	2000	152	76·45	Oct.	13·79	May	1·48
Inland (Eastern)—							
Longford	...	94	28·96	June	5·33	Jan.	0·75
Avoca	...	126	27·14	,,	5·75	,,	0·23
Ross	...	115	19·95	,,	4·28	,,	0·58
Oatlands	1337	98	23·48	,,	4·52	,,	0·82
Fingal	...	120	41·38	,,	13·60	,,	0·19
New Norfolk	...	105	18·61	Oct.	3·00	,,	0·54
Great Lake	...	160	34·64	June	7·19	,,	0·94
Lake Leake	...	168	47·24	,,	11·54	,,	0·80
Ormley (Avoca)	...	94	32·79	,,	9·76	,,	0·14
Killymoon (Fingal)	...	141	50·40	,,	13·52	,,	0·12
Mathinna	...	68	38·24	,,	8·53	,,	0·00
Branxholm	...	104	54·91	,,	10·63	Dec.	1·38
Inland (Eastern)—							
Hamilton	...	85	16·78	June	2·43	Jan.	0·40
Gould's Country	...	124	64·25	June	12·09	,,	0·60
Dog's Head, Lake Sorell	...	96	52·07	June	13·81	,,	0·82
Campbell Town	...	...	...	...		...	
Bothwell	...	102	23·63	June	4·43	Jan.	0·42
Deloraine	...	122	43·97	,,	7·66	,,	0·53
Scottsdale	...	116	50·48	,,	7·82	,,	0·61
Bagdad	...	108	28·18	,,	5·94	,,	0·63
Richmond	...	116	29·64	,,	5·43	May	0·83

The great difference between the rainfall in the eastern and western parts of the Island is very remarkable, reaching as high as 76·45 inches (Mount Bischoff) in the latter; the highest in the eastern part is 64·25 (Gould's Country). Generally, the greatest amount of rainfall occurs in June and July, and the least in January and May.

It will be observed that the greater portion of the Island—the region of settlement—is characterised by a remarkably mild and equable temperature, between the extremes of 20·0° to 34·0° in winter, and 78·0° to 96·3° in summer; and the rainfall, except in the wild sub-alpine mineral regions of the west, is moderate and regular.

The meteorological observations at Hobart for over 50 years show little variation from year to year. A mean of 35 to 40 years gives the following results per year:—

Atmospheric pressure	29·849 inches.
Mean temperature	55·10 deg.
Humidity of air	0·74 per cent.
Rainfall	143 days.
	22·93 inches.

The following table shows comparatively the meteorological conditions of various cities in Australasia and elsewhere:—

METEOROLOGICAL CONDITIONS OF AUSTRALASIAN CITIES.

Mean Yearly Average.

	Mean Atmospheric Pressure.	Temperature in Shade.			Rainfall.	
		Mean.	Max.	Min.	Days.	Inches.
Brisbane						
Perth—1890	30·015	64·00	106·00	38·00	127	46·73
Adelaide						
Sydney—1890	30·015	63·20	106·90	36·80	154	49·20
Melbourne—1889	29·943	58·50	99·80	31·30	125	27·14
Hobart—1890	29·892	55·3	97·8	31·80	173	27·51
London (Greenwich)	29·744	47·80	92·2	15·50	142	19·86
Dublin	30·015	49·35	78·9	23·10	160	16·60
Quebec	...	38·16	91·2	28·20	...	45·56

Rivers, Lakes, Mountains, Bays and Harbours, Capes and Promontories, and Islands.

If an imaginary line be drawn through the Island coincident with the 146·5° meridian of east longitude, it would cut through the 42° of south latitude, in the elevated centre of the Island, near Lake Fergus. Taking these lines as boundaries for marking the distribution of rivers, lakes, &c., the Island would be divided into four principal divisions—North-Western, North-Eastern, South-Western, and South-Eastern. By this arrangement a fairly comprehensive list of the more important topographical matters may be concisely tabulated, whilst securing some notion of distribution.

RIVERS HAVING THEIR EMBOUCHURES IN THE VARIOUS DIVISIONS, WITH THEIR TRIBUTARIES AND LAKES.

River.	Affluents.		Embouchures.
	Tributary Rivers.	Lakes.	
North-Western Division.			
Northern Slope, from Port Frederick to Cape Grim.			
Mersey	Fish R., Fisher's R., Lobster Rt., Minnow R., Dasher R., Caroline Ck.	Adelaide	Port Frederick
Don	...	...	Don mouth
Forth	Dove R., Lea R., Wilmot R.	L. Belvoir	Port Fenton
Gawler	...	...	Ulverstone
Leven	...	...	
Penguin	...	...	Penguin
Blyth	...	...	Blyth mouth
Emu	...	...	Emu Bay
Cam	...	...	Port Maldon

River.	Affluents.		Embouchures.
	Tributary Rivers.	Lakes.	
Inglis	Calder R., Flowerdale R., Black Fish Ck.	...	Wynyard
Detention	...	...	Pebbly Bay
Black River	...	...	Sawyer's Bay
Duck	...	...	Duck Bay
Montagu	...	...	Montagu
Welcome	...	...	Welcome R. mouth
Western Slope, from Cape Grim to Little Henty.			
ARTHUR	Waratah R., Wandle R., Hellyer R., Gunn R., Rapid R., Hilder R., Wey R., Horton R., Leigh R., Balfour R., Frankland R.	...	Arthur R. mouth
Nelson	...	...	Nelson mouth
Lagoon	...	...	Lagoon mouth
Pedder	...	...	Pedder mouth
Interview	...	...	Interview mouth
PIEMAN	Canning R., Bluff R., Murchison R., Brougham R., Fury R., Sophia R., Mackintosh R., Hadfield R., Coldstream R., Wilson R., Huskisson R., Castray R., Heazlewood R., Whyte R., Savage R., Donaldson R.	L. Augusta	Corinna

SOUTH-WESTERN DIVISION.

South-Western Slope, from Little Henty River to New River.

Little Henty	...	...	Little Henty mouth
Henty	Badger R.	...	Henty mouth
Burgess		...	
KING	North Eldon R., South Eldon R., Princess R., Nelson R., Queen R.	L. Rolleston, L. Dora, L. Spicer, L. Beatrice	Macquarie Harbour
GORDON	Boyes R., Adams R., Boyd R., Wedge R., Denison R., Serpentine R., Sprent R., Cardigan R., Scarlett R., Balaclava R., Inkerman R., Alma R., Loddon R., Acheron R., Jane R., Franklin R.	L. Undine, L. Dixon, L. *Pedder*, L. Maria	Macquarie Harbour
Hibbs	...	...	Hibbs mouth
Spero	...	...	Spero mouth
Wanderer	...	...	Wanderer mouth
Mainwaring	...	...	Mainwaring mouth
Rocky	...	...	Rocky mouth
Rocky Point	...	...	Rocky Point mouth
Giblin	...	...	Giblin mouth
Davey	Hardwood R., Pine R., Crossing R., De Witt R.	...	Port Davey
Old	...	...	Port Davey
North	...	...	Port Davey
Spring	...	...	Port Davey

River.	Affluents.		Embouchures.
	Tributary Rivers.	Lakes.	
SOUTH-EASTERN DIVISION.			
South-Eastern Slope, from New River to Great Swanport.			
New River	...	...	New River mouth
Lune	...	...	
Esperance	...	...	
Huon	Anne R., Craycroft R., Picton R., Weld R., Arve R., Russell R., Mountain R., Sandfly Rt., Agnes R.	L. Edgar	D'Entrecasteaux Channel
Snug	...	...	
North-west Bay River	...	...	
Derwent	Pine R., Little Pine R., Nive R., Clarence R., Florentine R., Repulse R., Broad R., Dee R., James R., Ouse R., Shannon R., Clyde R., Russell's Falls R., Styx R., Plenty R., Lachlan R., Sorell R., Jordan R., Brown's R.	*L. St. Clair*, L. Ina, L. George, L. Ada, L. Pillan, L. Fergus, *L. Echo*, *Great Lake*, *L. Sorell*, *L. Crescent*, L. Tiberias	Storm Bay
Coal	...	...	Frederick Henry Bay
Carlton	...	...	
Prosser's	...	...	Spring Bay
Little Swanport	...	...	Little Swanport
Meredith	...	...	
Swan	Brushy R., Wye R.	...	Oyster Bay
Apsley	...	...	
NORTH-EASTERN DIVISION.			
Eastern Slope, from Great Swanport to Eddystone Point.			
Douglas	...	...	Douglas R. mouth
Scamander	...	...	Scamander R. ,,
George's	...	...	George's Bay
Anson's	...	...	Anson's Bay
Northern Slope, from Eddystone Point to Port Frederick.			
Great Mussel Roe	...	...	Poole
Ringarooma	Dorset R., Cascade R., Weld R., Frome R., Winiford R.	...	Ringarooma Bay
Boobyalla	...	...	
Tomahawk	..	...	
Brid	Great Forester	...	Anderson's Bay
Piper's	...	...	Noland Bay
Tamar	South Esk R., Break o' Day R., St. Paul's R., Elizabeth R., Macquarie R., Blackman's R., Lake R., Nile R., Meander R., Liffey R., St. Patrick's R., North Esk R., Supply R.	*Arthur's Lakes*, Woods' Lake, L. Tooms	Port Dalrymple
Rubicon	...	...	Port Sorell

The principal Rivers on the Northern Slope are the Tamar and Mersey.
" " " " Western " " Pieman and Gordon.
" " " " Eastern " " Derwent and Huon.

The Tamar is navigable for large steamers to the Port of Launceston, a distance of 40 miles from the Tamar Heads. The Derwent is considered to be one of the finest harbours in the Southern Hemisphere, and is navigable for 22 miles beyond Hobart, the capital. Hobart is situated in one of the fine wide upper reaches of the estuary, at a distance of about 40 miles inland from the bold open approach at Storm Bay, and its port is regularly visited by the largest steamers of the Australian line. Both the Gordon and Pieman are navigable for many miles from their mouths for ships of fair size.

PRINCIPAL MOUNTAINS (2500 feet and upwards), 50.

	Height.	County.
North-Western Division—		
Cradle Mountain	5069	Lincoln
Eldon Range	4789	Montagu
Ironstone Mountain	4736	Westmorland
Black Bluff	4381	Devon
Mount Roland	4047	"
Gould's Sugar-loaf	3972	Lincoln
Mount Dundas	3922	Montgomery
Mount Ramsay	3810	Russell
Valentine s Peak	3637	Wellington
Parson's Hood	2849	Russell
Mount Bischoff	2598	"
South-Western Division—		
Frenchman's Cap	4756	Westmorland
Mount Hugel	4700	Lincoln
Wyld's Craig	4399	Franklin
King William I.	4360	"
Mount Picton	4340	Arthur
Mount Hobhouse	4031	Franklin
Mount Read	3890	Montgomery
Arthur Range	3668	Arthur
Wilmot Range	3483	"
Brady's Sugar-loaf	3361	Cumberland
Bathurst Range	2626	Kent
North-Eastern Division—		
Ben Lomond	5010	Cornwall
Mount Barrow	4644	Dorset
Brady's Look-out	4497	Westmorland
Dry's Bluff	4257	"
Miller's Bluff	3977	Somerset
Mount Victoria	3964	Dorset
Ben Nevis	3910	Cornwall
Row Tor or Mount Arthur	3895	Dorset
St. Paul's Dome	3368	Cornwall
Snow Hill	3175	Glamorgan
Mount Nicholas	2812	Cornwall
Mount St. John	2550	Glamorgan
South-Eastern Division—		
Field West	4721	Buckingham
Field East	4167	"
Mount Wellington	4166	"
Collins' Bonnet	4131	"
Adamson's Peak	4017	Kent
La Perouse	3800	"
Mount Penny	3782	Westmorland

PRINCIPAL MOUNTAINS—*continued.*

	Height.	County.
Table Mountain	3596	Somerset
Mount Franklin	3597	"
Mount Dromedary	3245	Monmouth
Woods' Quoin.....	3033	"
Blue Hill	2922	Cumberland
Grey Mountain	2713	Buckingham
Mount Connection	2630	Glamorgan
Brown Mountain.....	2598	Pembroke
Black Tier	2544	Monmouth

PRINCIPAL BAYS, HARBOURS, CAPES, AND PROMONTORIES.

Bays and Harbours.	Capes and Promontories.

WEST COAST—*Cape Grim to South-East Cape.*

Valley Bay, Studland Bay, Calm Bay, Nettley Bay, Arthur River, Native Well Bay, Granville Harbour, Pieman River, Trial Bay, MACQUARIE HARBOUR, Mainwaring Cove, Mainwaring Inlet, Elliott Cove, PORT DAVEY, Ketchen Bay, New Harbour, Cox Bight, Louisa Bay, New River Inlet, South Cape Bay.

CAPE GRIM, Bluff Point, Green Point West Point, Second Bluff Point, Sundown Point, Ordnance Point, Sandy Cape, CAPE SORELL, POINT HIBBS, Rocky Point, Point St. Vincent, Pollard Point, Hilliard Head, SOUTH-WEST CAPE, SOUTH CAPE, SOUTH-EAST CAPE.

EAST COAST—*South-East Cape to Eddystone Point.*

D'ENTRECASTEAUX CHANNEL, (Recherche Bay, Southport, Port Esperance, Port Cygnet, North-West Bay, Barnes' Bay, Great Bay, Isthmus Bay, Little Taylor's Bay, Great Taylor's Bay), Cloudy Bay, ADVENTURE BAY, Variety Bay, Trumpeter Bay, Bull Bay, Ralph's Bay, STORM BAY, FREDERICK HENRY BAY, Norfolk Bay, Wedge Bay, Tunnel Bay, PORT ARTHUR, Fortescue Bay, Pirates Bay, Wilmot Harbour, North Bay, Blackman's Bay, Marion Bay, Reidle Bay, SPRING BAY, Okehampton Bay, Grindstone Bay, Little Swanport, Oyster Bay, Cole's Bay, Wineglass Bay, Sleepy Bay, Bluestone Bay, Half-moon Bay, Maclean's Bay, GEORGE'S BAY, Skeleton Bay, Boat Harbour, Bay of Fires, Anson's Bay.

Whale Head, BRUNI HEAD, TASMAN'S HEAD, Cape Conella, CAPE FREDERICK HENRY, CAPE RAOUL, CAPE PILLAR, Cape Hauy, Cape Surville, Yellow Bluff, Humper's Bluff, Cape Frederick Hendrick, Cape Paul Lamanon, Cape Peron, Cape Bald, Cape Mistaken, RAGGED HEAD, Cape Boulanger, Cape Bougainville, Cape Bailly, SCHOUTEN ISLAND, Cape Forstier, Cape Tourville, Cape Lodi, Peggy Point, Long Point, Picanini Point, Helen's Point, Grant's Point, EDDYSTONE POINT.

NORTH COAST—*Eddystone Point to Cape Grim.*

Ringarooma Bay, Croppie's Bay, Anderson's Bay, Noland Bay, Tam o'Shanter Bay, PORT DALRYMPLE, PORT SORELL, PORT FREDERICK, Port Fenton, Preservation Bay, Emu Bay, Port Maldon, Freestone Cove, Jacobs' Boat Harbour, Pebbly Bay, Brickmakers' Bay, Half-moon Bay, West Bay, Duck Bay.

Cape Naturaliste, CAPE PORTLAND, WATERHOUSE POINT, East Double Sandy Point, West Double Sandy Point, Stony Head, Five-mile Bluff, Low Head, West Head, Badger Head, Point Sorell, Tea Tree Point, Blackman's Point, TABLE CAPE, ROCKY CAPE, CIRCULAR HEAD, North Point, West Point, CAPE GRIM.

The more important Bays and Harbours, &c. are indicated by small capital letters.

PRINCIPAL ISLAND DEPENDENCIES.

	Area in Acres.
North-East Group, Bass Strait—	
Flinders'	513,000
Cape Barren	110,000
Clarke's	20,000
Kent's Group and others	27,000
North-West Group—	
King's	272,000
Robbins'	24,500
Three Hummocks	19,000
Hunter's	18,400
Walker's	1700
Others	1900
East Coast—	
Schouten	7000
Maria	24,000
Bruni	90,000
All others in the South	2500
	1,131,000

AREA OF TASMANIA.

	Acres.
Tasmania, exclusive of Islands and Lakes	15,571,500
Islands	1,131,000
Lakes	75,500
Total Area	16,778,000

Towns and Cities.

THE total population of the Colony on 31st December, 1890, was estimated to be 145,290. With such a scanty population, therefore, there can be no large centres of population. The capital, Hobart, possessing a magnificent harbour, is beautifully situated near the mouth of the Derwent, in the south, and has a population, Census, 5 April, 1891, of 33,450 persons, including suburbs. Next in importance is the City of Launceston, situated on the Tamar, in the northern part of the Island, which, with suburbs, has a population of about 21,316 persons. Of the remaining towns and townships there are only about 81, each having a population—at the time of the last census in 1891—ranging from 100 to 1720 persons respectively. The following table contains a list of the various places; those marked (*) are mining centres:—

	Population, 1891, (Census.)	Situation.
NORTH-WESTERN DIVISION.		
Zeehan*	1965	River Badger
Devonport, East 559	1805	River Mersey
Devonport, West 1246		
Latrobe	1560	Ditto
Waratah*	1420	River Waratah
Ulverstone	1129	River Leven
Dundas*	1080	River Badger

	Population, 1891, (Census.)	Situation.
Burnie	981	River Emu
Wynyard	621	River Inglis
Sheffield	429	River Dasher
Stanley	400	Near Black River
Penguin	396	Penguin Creek
Reminé*	213	Trial Bay
Leith	122	Bessell Rivulet
Forth	114	River Forth
South-Western Division.		
Strahan*	561	Long Bay, Macquarie Harbour
North-Eastern Division.		
Launceston (City)	17,208	River Tamar
Beaconsfield*	1584	Anderson's Creek and South Arm, Tamar
Westbury	1154	Quamby Brook
Longford	1084	South Esk River
Deloraine	895	River Meander
Invermay	882	Suburb of Launceston
Campbell Town	818	Elizabeth River
Ellesmere	590	Cox Rivulet
Evandale	540	South Esk River
Perth	517	Ditto
Lefroy*	465	Nine Mile Springs
Mathinna*	426	South Esk River
Fingal	425	Ditto
St. Helen's	363	George's River
George Town	299	River Tamar
Carrick	281	Liffey Rivulet
Derby	273	Ringarooma River
St. Mary's	268	Break o' Day River
Trevallyn	256	Suburb of Launceston
St. Leonard's	254	Ditto
Mangana*	226	Richardson's Creek
Cressy	225	Brumby's Creek
Gladstone*	193	River Ringarooma
Cornwall*	185	Break o' Day River
Avoca	180	South Esk River
Weldborough	167	Weld River
Winkleigh	161	Supply River
Low Head	153	River Tamar
Breadalbane	131	North Esk River
Chudleigh	127	Lobster Rivulet
Ringarooma*	117	Ringarooma River
Hagley	114	South Esk River
Branxholm*	103	Ringarooma River
Bracknell	101	River Liffey
Mount Nicholas*	94	South Esk River
South-Eastern Division.		
Hobart (City only—Capital)	24,905	River Derwent
New Town	2288	Suburb of Hobart
Sandy Bay	1443	Ditto
New Norfolk	1072	River Derwent
Oatlands	731	Lake Dulverton
Wellington Hamlets	704	Suburb of Hobart
Glebe Town	643	Ditto

	Population, 1891, (Census).	Situation.
Bellerive	625	Suburb of Hobart
Glenorchy	588	Ditto
Richmond	536	Coal River
Bothwell	520	River Clyde
Franklin	506	River Huon
Kempton	426	River Jordan
Ross	389	Macquarie River
Hamilton	348	River Ouse
Swansea	295	Oyster Bay
Sorell	282	Pittwater
Kingston	249	Brown's River
Lovett	247	Huon River
Jerusalem	189	Coal River
Pontville	172	River Jordan
Woodbridge	166	D'Entrecasteaux Channel
Triabunna	165	Spring Bay
Margate	158	North West Bay
Huonville	145	Huon River
Bridgewater (North)	143	River Derwent
Ramsgate	134	D'Entrecasteaux Channel
Buckland	125	Prosser's Rivulet

CHAPTER II.

History.

SUMMARY OF LEADING EVENTS.

Year 1642. First Discovery.

THE first discovery of Tasmania was made on the 24th November, 1642, by the intrepid Dutch navigator, Abel Jans Tasman.

The Dutch were at this time in the zenith of their power, and their spirited commercial enterprise enabled them to command the maritime trade of a large portion of the globe, which trade, owing to the influence of the "Three great voyages," had rapidly expanded. The discovery of America by Columbus; the doubling of the Cape of Good Hope by Vasco de Gama; and, greatest of all, the circumnavigation of the globe by Magellan, gave a great impetus to maritime and commercial enterprise; and many European countries—especially the Spanish, Dutch, French, and English—vied with each other in promoting maritime discovery, in the hope of extending their trade and commerce by the possession of newly discovered lands.

It is undoubtedly this spirit which animated Anthony Van Diemen, Governor-General of the Dutch Settlement in Batavia, in the

Island of Java—when, in continuation of previous expeditions, he issued the command to Abel Jans Tasman to proceed to further explore the vaguely known "Great South Land"—a name by which the region of New Holland or Australia was alone known up to the year 1665.

Accordingly, on the 14th of August, 1642, Tasman embarked at Batavia on board the *Heemskirk*; the fly-boat *Zeehan*, Jerit Zanzoon, master, in company. Mauritius, discovered in the year 1505 by Don Pedro Mascarequas, was now also in the possession of the Dutch, and thence Tasman first directed his expedition. Leaving the Mauritius on the 8th of October of the same year, they proceeded in an easterly direction in quest of the "Great South Land" and after various experiences, the first pilot, supported by the steersman, gave the following advice:—"We shall keep to the 44° south latitude until we have passed 150° longitude; then make for latitude 40° south, and keeping in that parallel to run eastward to 220° longitude, and then steering northwards, search with the trade wind from east to west for the Solomon Islands. We imagine if we meet with no mainland till we come to 150° longitude we must then meet with islands." This judgment proved to be very correct, for soon after the compasses were so disturbed that they inferred the neighbourhood of land, and on the 24th November, at 4 o'clock P.M., they sighted land—Point Hibbs—a remarkable limestone promontory, now so well known on our Western Coast, a little to the south of the entrance to Macquarie Harbour, which was only discovered in 1816, or 174 years later. In the evening of the same day they observed lofty mountains rising inland east-south-east and to the north-east. These mountains long after were named Heemskirk and Zeehan by Captain Flinders, in commemoration of the names of Tasman's vessels. It is of additional interest that the recent remarkable discoveries of tin and silver should have been made in the vicinity of the lofty eminences which attracted the attention of the first discoverers of Tasmania, who originally gave it the name of "Anthony Van Diemen's Land," in honour of the Dutch Governor-General of Batavia. Tasman sailed round the southern extremity of the Island, sighting several islands, including those known as the Mewstone, Swilly, and Eddystone. Tasman also named one of the smaller groups the Boreels, in honour of the Council of India. After partly ascending Storm Bay the vessels came to an anchor in the afternoon of 1st December in a good port (marked Frederick Hendrik Bay in the chart, but now better known as Marion Bay, leading up to the southern head of East Bay Neck). Here those in boats despatched to the shore observed evidences indicating the presence of the natives. They saw that some of the larger trees were notched by flintstone to facilitate climbing, as was supposed for bird's nests (more probably for opossums); and two days later Tasman's carpenter swam ashore in a little bay to the south-east of their former anchorage, and, near four remarkable trees, standing in the form of a crescent, he erected a post on which a compass was carved, and left the Prince's flag (Frederick Henry) flying upon it.

After sailing along the East Coast, to parts of which they gave the names by which they are still known—notably *Maria Island*, in

honour of a member of the Van Diemen family; *Schouten Island*, in honour of the Dutch commander who first rounded Cape Horn in 1610—they finally lost sight of land, the last notable object observed being St. Patrick's Head. Tasman then steered to New Zealand, also one of his discoveries, and finally reaching his original point of departure (Batavia) the sturdy navigator was enabled to place on record the marvels of his remarkable voyage, which, with characteristic devotion, he closes with "God be praised for this happy voyage! Amen."

1772.

For more than a century after its discovery by Abel Jans Tasman no European had invaded its solitudes until 4th March, 1772. The French navigator Marion du Fresne anchored his ships—the *Mascarin* and the *Castries*—in the Frederic Hendric Bay of Tasman, now marked on the maps Marion Bay. Captain Marion remained there six days, landed, and attempted to establish intercourse with the natives, but this resulted in an encounter, in which the first Tasmanian aborigine fell under the fire of European muskets.

1773 (March 9).

In the following year—9th March, 1773—the Island was next accidentally visited by an English ship (the *Adventure*), commanded by Captain Tobias Furneaux. The ship cast anchor in the bay which now bears its name. No natives were seen, but their fires were observed along the shore.

1777 (January 26).

The ships *Resolution* and *Discovery* (Cook's third and last expedition) entered Adventure Bay. Captain Cook and party landed, and soon after fell in with a party of natives, with whom they had some intercourse.

1788 (January 20).

The English ships *Sirius* and *Supply*, accompanied by three store ships and six transports, carrying 7000 persons, first anchored at Botany; but finding this place unsuitable, the colony was transferred to Port Jackson, which magnificent harbour was then fortunately discovered. This was the first colony established in Australasia.

1789 (July 3.)

Captain John Henry Cox, in the brig *Mercury*, sailed inside the Schouten and Maria Islands, and discovered Oyster Bay.

1789.

Lieutenant Bligh, on his way to Tahiti, touched at several places on the south-east coast. Spent twelve days at Adventure Bay, where he observed an English record engraved upon a tree—"A.D. 1773." At Frederick Henry Bay he had an interview with the natives.

Robert Brown, the eminent botanist, accompanied Lieutenant Bligh in this expedition.

1792.

Lieutenant Bligh a second time visited the south of the Island, where he planted several trees. This was subsequent to the mutiny of

his crew, some of whose descendants still occupy the Pitcairn Islands. A portion of the inhabitants of these islands were afterwards transferred to Norfolk Island by the British Government, the resources of their original home being too limited to supply the wants of their increasing numbers.

1792-1793.

The year 1792 is also memorable by the visit of the illustrious French navigator, Rear-Admiral Bruny D'Entrecasteaux, in the *Recherche*, and Captain Huon Kermadec in the *Esperance*. Excellent surveys were made in Storm Bay. D'Entrecasteaux made a second visit in January, 1793, for the purpose of completing surveys. The names of the ships and commanders, by which the many islands, bays, channels, and mountains in the south are known, still bear witness to their important investigations.

Labillardière, the illustrious botanist, accompanied this expedition.

1794.

Captain Hayes, in command of the ships *Duke of Clarence* and *Duchess*, entered the Derwent, which he so named. He was then unaware of the visit of D'Entrecasteaux, who had previously discovered this river and named it " Rivière du Nord."

1798.

The sloop *Norfolk* sailed from Port Jackson, under the command of Lieutenant Flinders, with the express object of demonstrating the insular character of Van Diemen's Land. He was accompanied by Dr. Bass, who had already discovered the strait now known by his name. The following names given to places along the North and West Coasts indicate the extent of their observations, viz.—Cape Portland, Waterhouse Island, Tamar River, Green Island (Tamar), West Arm, Middle Island, Whirlpool Reach, Swan Point, Long Reach, Point Rapid, Crescentshore, Table Cape, Rocky Cape, Circular Head, Trefoil Island, Hunter's Island, Cape Grim, Mount Heemskirk, Mount Zeehan, Point Hibbs. Entered the Derwent on 18th December, where the party fell in with some of the natives, with whom they had communication. Leaving the Derwent on 31st December, the party proceeded by the eastern coast to Sydney, thus effecting the first circumnavigation of the Island.

1799.

Port Phillip discovered by Captain Murray.

1802.

Another French expedition visited the Island under Commodore Baudin, consisting of the ships *Géographe* and *Naturaliste*, with the corvette *Casuarina*.

A careful survey was made of the east coast. Monge, the surgeon, died here, and was buried at Maria Island. Géographe Strait was named in honour of the Commodore's ship; Freycinet's Peninsula in honour of Lieutenant Freycinet. Peron, the eminent naturalist, who afterwards wrote a history of the expedition, gives an interesting account of their intercourse with the natives.

1803. First Settlement formed in Tasmania.

On the 12th September Lieutenant John Bowen, acting under instructions from Governor King, of New South Wales, arrived in the *Albion*, and landed at Risdon, where he formed the first settlement in Tasmania. The *Lady Nelson* with rest of establishment had arrived in Risdon Cove 7th September.

The Tamar was also visited in the same year by Superintendent Collins, in the *Lady Nelson*, by order of Lieutenant-Governor Collins, then at Port Phillip. Superintendent Collins, on his return, reported unfavourably of the Tamar (Port Dalrymple) as a place of settlement.

1804.

The site of Hobart, in Sullivan's Cove, fixed upon as a town by Governor Collins. The party (conveyed in the ships *Ocean* and *Lady Nelson*), left Port Phillip on 30th January, and arrived in the Derwent on 15th February. Collins was dissatisfied with the location at Risdon, preferring the southern shore; and soon after (20th February) he fixed upon Sullivan's Cove, where he landed and pitched his tents.

Colonel Paterson, acting under instructions from Governor King, of New South Wales, landed at George Town, in the Tamar, in October, 1804, and fixed the site of a town; but the head-quarters were soon after removed to York Town.

The system of assigning convicts to free settlers was established this year by Governor King.

The first unfortunate affray with the natives occurred at Risdon. Many natives were killed and wounded. To this affray may be ascribed all the subsequent troubles with the aboriginal tribes.

1805.

Part of the settlers from Norfolk Island removed to Tasmania, taking up locations chiefly at Hobart, Pittwater, New Norfolk, and Norfolk Plains.

1806-1807.

The settlement at York Town was removed (1806) by Colonel Paterson to the spot where the City of Launceston now stands. The town he named in honour of Governor King's birth-place in England. The river was also named the Tamar, after a Cornish stream.

Settlers in the Island, as well as in New South Wales, were reduced to a state of famine, firstly, owing to the destruction of the crops and live stock caused by a heavy flood in the Hawkesbury, this river having risen to the height of sixty to eighty feet in a few hours; secondly, owing to failure of the following season's crop of wheat.

1808.

The famine still continuing, the settlements were bordering on absolute starvation. Wheat rose to £4 per bushel, equal to about £200 per ton.

1810.

The famine still continuing, the Government were at last unable to feed the prisoners, and in order to save their lives they were permitted to roam at liberty in search of wild animals and other food. During the year, however, relief came by the arrival of a cargo of wheat from India.

In the early part of this year the first newspaper printed in the Colony appeared, under the title of the *Derwent Star and Van Diemen's Land Intelligencer*. It was issued fortnightly, at *two shillings* a copy, but it soon expired owing to want of funds. Governor Collins died suddenly at Hobart, on the 24th March, 1810.

1811 (February 4).

Colonel Davey appointed second Lieutenant-Governor.

1812.

Settlements on the Tamar and Derwent united under one government. Formerly these settlements were independently governed.

1814.

Second attempt to establish a newspaper was made, under the title *Van Diemen's Land Gazette*, but it soon collapsed for want of support. The first Court, styled the "Lieutenant-Governor's Court," was established. Its jurisdiction was restricted to personal matters under the value of £50. All other cases, civil and criminal, were tried in Sydney. Bushrangers were now begining to spread terror among the settlers throughout the Island.

1815.

Captain James Kelly explored the southern, western, and northern coasts, and made many important discoveries, chief among which were Port Davey and Macquarie Harbour, so named by him. His party on arriving at George Town were at first mistaken for bushrangers.

1815-1816.

Agriculture progressed so far that the Colony was able to export nearly 15,000 bushels of wheat to Sydney. The first flour-mill was erected at this time.

1816.

The *Hobart Town Gazette*, edited by Andrew Bent, established. The difficulties of this first literary enterprise are indicated by the curious notice that subscribers three years in arrears are strongly urged to deliver wheat in payment at once, to save proceedings being taken.

1817.

The foundation stone of the first church in the Colony (St. David's, Hobart) was laid by Governor Davey. Soon after (April) Colonel Davey ceased to administer the Government. His successor, Colonel William Sorell, took control on his arrival on the 8th April; the population then numbering 3114 persons.

Hobart at this time had a population estimated at 1000 souls, and the houses are described as for the most part a collection of mean-looking wooden huts. No schools had yet been established in the Island. Free immigrants now began to make their appearance in considerable numbers, including many retired officers of the army and navy, besides gentlemen of moderate capital, who were attracted by the facilities offered to them for settlement in the shape of free grants of land. The finest parts of the agricultural areas were alienated at this time.

1820.

The first important importation of pure merino lambs (300) arrived obtained from flocks of Captain John Macarthur, of Camden, New South Wales; originally derived from the Royal flock of pure merinos at Kew.

1821 (December).

Penal settlement established at Macquarie Harbour.

1822.

St. David's Church, Hobart, completed. First clergyman, the Rev. Robert Knopwood, who arrived in the Colony with Collins' fleet in 1804.

1824.

Governor Sorell's administration ceased, and his successor, Lieut.-Colonel George Arthur, arrived in Hobart on the 12th May, 1824. On the 24th May the first session of a Supreme Court was opened, on the arrival of Judge Pedder from England with the charter.

1825-1826.

Van Diemen's Land was proclaimed an independent colony. Hitherto the local Governor was subordinate to the Governor of New South Wales. The Government established locally consisted of two Councils appointed by the Crown,—one, the Executive, comprising four members; the other, the Legislative, having seven members. The functions of the former were to advise the Governor, and those of the latter to frame the laws.

After a life of ten years, Bent's *Hobart Town Gazette and V. D.L. Advertiser* ceased to exist. The *Hobart Town Gazette* was soon afterwards issued as a Government publication. The *Colonial Times* was first issued on 19th October, 1825, limited to advertisements.

1827.

Mr. Henry Hellyer explored the country along the Arthur and Hellyer Rivers, also the country named by him Surrey and Hampshire Hills. Liberty of the press suppressed by Governor Arthur. Bent imprisoned for a month for publishing an advertising sheet. Governor Arthur's action in this matter caused general dissatisfaction.

1828.

Van Diemen's Land Company (sheep farming) commenced operations on a block of 250,000 acres in the north-west part of the Island, which was conditionally granted to the Company by charter, passed on 9th November, 1825. The country around Emu Bay and Circular Head was explored on behalf of the Company this year, and an addition of 100,000 acres was made to the Company's original grant. About this time also another company of capitalists was formed—the Van Diemen's Land Establishment—who received a grant of 40,000 acres of land in the Norfolk Plains District for agricultural and stock-breeding purposes, and large importations of improved breeds of horses, sheep, and cattle were made. The Council was increased in number by a new Constitution Act. The *Tasmanian and Austral-Asiatic Review* established in Hobart Town in February, 1828—editor, Robert Lathrop Murray.

1829.

Two newspapers were started in Launceston. The *Cornwall Press*, edited by Mr. S. Dowsett, soon collapsed; but the *Launceston Advertiser*, established by John Pascoe Fawkner, and edited by Mr. Henry Dowling, became a useful and popular journal.

1830.

Owing to the depredations of the natives, the movement known as the Black Line was organised, at an expense of £30,000, with the object of forcing all the natives into Tasman's Peninsula; but the result was a complete failure, the only capture being one man and a boy.

1830-1835.

What force could not effect in gathering the natives into one place was achieved marvellously within five years by the benevolence and friendly suasion of one man (the celebrated George Augustus Robinson). There were only 203 survivors in the final gathering of the natives into the settlement prepared for them on Flinders' Island.

1834-1837.

The first settlement within the Colony of Victoria was made by the two Messrs. Henty, of Launceston, Tasmania, in the year 1834. These founders of this important colony first occupied the country round Portland Bay with flocks of sheep. They also tilled the soil and produced cereals for their own consumption. The plough used by the Messrs. Henty in turning the first sod of Victorian soil was preserved, and was exhibited as an interesting relic at the Melbourne International Exhibition of 1880–81. Launceston also had the honour of originating the two expeditions following that of the Hentys, which first permanently occupied Port Phillip. The first of these—Batman's party—arrived on 29th May, 1835, in the *Rebecca*, and made their headquarters at Indented Head; the second, organised by Mr. J. P. Fawkner, entered the Yarra on 28th August, 1835, and moored their vessel, the *Enterprise*, to the trees which grew on the banks of the river, where the great city of Melbourne now stands. A brisk trade was soon opened up between the two colonies, and a large migration of Tasmanians, with their flocks, herds, and implements, soon set in in favour of the newly-founded Colony. Thus, the honour of founding the colony of Victoria is due to Tasmanian enterprise.

The progress made within the colony of Tasmania was very marked during Governor Arthur's rule. In 1835 the means of internal communication was wonderfully improved. The mail cart twice a week now made the journey between Hobart and Launceston—121 miles—in 19 hours. In 1824 the mails were carried by foot post once a fortnight. There were now established throughout the Colony—with a population of 40,172 persons—29 schools, with an attendance of 1177 children. There were also 18 places of worship, as compared with four on the arrival of Governor Arthur. Bushranging, formerly so common, was now almost unknown.

About this time Macquarie Harbour was abandoned, and the prisoners were removed to the new settlement established at Port

Arthur, on Tasman's Peninsula, where they were treated with less rigour. Large gangs of convicts were being employed in the formation of roads and bridges throughout the Colony—notably the Bridgewater Causeway and the Hobart Town and Richmond Road.

Governor Arthur's governorship terminated on the 31st October, 1836, on which day he embarked for England. The duties of Acting-Governor were then vested in Lieutenant-Colonel Kenneth Snodgrass, who continued in office for two months and six days.

1837-1843.

Sir John Franklin arrived in Hobart, and assumed the governorship of the Colony, on the 6th day of January, 1837. He was enthusiastically received by the colonists. Although the new Governor was highly esteemed personally, he encountered great difficulties in administering the government of a Colony amid the discordant elements of party strifes arising out of the unhappy condition of a mixed society of free colonists and the officials of penal institutions. His efforts, humanely directed to promote harmony and good government, met with indifferent success. In all matters tending to promote higher education and improvement in social condition he took a prominent part, and was eminently successful. He was the founder, and first President, of the existing Royal Society of Tasmania. The earliest meetings of this body, then styled *The Tasmanian Society*, was held once a fortnight in the Library of Government House, where papers were read on scientific and philosophical subjects. In the year 1841 the first publication of the Society appeared, under the title of *The Tasmanian Journal of Natural Science* (now changed to *Papers and Proceedings of the Royal Society of Tasmania*). In an interesting introductory article written by the Rev. John Lillie, of St. Andrew's Church, Hobart, an ardent student of natural history, the author indicates the scope of the Society's aims, and in urging the claims of science as a means of culture, he states that, animated by "the conviction that they are now living at the fountain-head of what promises ere long to swell into a mighty stream of civilization, they have been anxious to impress upon that stream, while it is yet susceptible of it, a salutary direction towards liberal and scientific pursuits." Our noble national Museum in Macquarie-street ; the valuable scientific Library of the Royal Society ; and the creditable position which that Society now holds among kindred Australian institutions as indicated by its yearly Proceedings, all bear witness that the impress then made has proved to be a valuable and lasting one.

Science and discovery soon after received additional impetus from the various scientific expeditions which visited the Island. The French warships in their voyage of discovery in the Antarctic regions, visited Hobart Town in December, 1839. The *Erebus* and *Terror*, commanded by Captains Ross and Crozier, visited Hobart Town in November, 1840 ; and its illustrious botanist, Dr. Joseph Dalton Hooker, then, under the able guidance of our local naturalists, Ronald Gunn, F.R.S., and W. Archer, made a thorough investigation of the flora of the Island, which formed the basis of Hooker's magnificent work *The Flora of Tasmania.*

At the same time, the natural history and physical character of the Island were made more widely known by the travels and observations of the illustrious Count Strzelecki, a Polish nobleman. This indefatigable naturalist was hospitably entertained and encouraged by Sir John Franklin. He travelled 7000 miles on foot through the wilds of New South Wales and Tasmania, and his subsequently written account, *Physical Description of New South Wales and Van Diemen's Land*, still testifies to the wonderful amount of information by which the world has been enriched by his wide and careful explorations. At this time, also, Her Majesty's ship *Beagle* was occupied in examining the coasts and rivers of the Island. The naturalist attached to this vessel was the illustrious Charles Darwin, who gives an interesting account in his "Journal of Researches" of the geological features of Hobart Town and his neighbourhood. The geological features of the Island, however, received much closer attention from the well-known geologist James Beete Jukes, who accompanied H.M. survey ship *Fly*. This eminent geologist describes very fully the geological features of the Island as observed by him in his work published in the year 1850, entitled *A Sketch of the Physical Structure of Australia.*

Dr. Richardson, who accompanied Dr. Ross's expedition, also made a large collection of our fishes, which were afterwards described. Thus the study of the various branches of science received at this period a wonderful impetus from the visits of the various scientific expeditions named.

Sir John Franklin's retirement from the government of the Colony, on 21st August, 1843, was in a large measure due to the unhappy differences between himself and the Colonial Secretary, Mr. John Montagu, who had been dismissed by Sir John Franklin for continued disrespectful conduct to himself as Governor. Soon after his retirement (1845) the frank and generous Sir John Franklin went forth in command of the ill-fated expedition *(Erebus and Terror)* for the purpose of discovering the North-West passage. The fatal end of this memorable expedition is now too well known. A bronze statue, above life size, is now erected in his memory in Franklin Square, Hobart, near the spot where he formerly resided at old Government House.

1843-1847.

Sir John Franklin was succeeded as Governor by Sir John Eardley Eardley-Wilmot, Bart., who arrived in Hobart in August, 1843.

During the short term of Sir Eardley Wilmot's government the Colony was in a very disturbed condition, caused immediately in a large measure by the breaking up of the convict settlement at Norfolk Island and its transfer to Port Arthur. The free colonists were now becoming more and more alarmed at the growing proportions of the fixed penal establishments throughout the Island; and the agitation to put a stop to further importations of convicts from other parts of Her Majesty's dominions was most intense. Added to this, the local cost of maintaining such a large body of police and numerous gaols plunged the Colony into a debt of £100,000, which, with a diminishing revenue, caused the Governor to propose to raise the taxes on imports from 5 to 15 per cent. This proposal was strenuously opposed by the colonists

and by the independent nominees forming the Council—six of whom resigned—resulting in a deadlock. The financial difficulty was afterwards overcome by a compromise; the Home Government agreeing to contribute £24,000 annually towards the maintenance of police and gaols.

1843.

In 1843 Dr. Francis Russell Nixon arrived in the Colony, having received the appointment of Bishop of Tasmania. The Colony had been created an independent diocese in the previous year. Mr. W. L. Kentish, engineer, while engaged in surveying new lines of road in the north-west part of the Island in the year 1844, discovered the open fertile plains now known by his name (Kentish Plains), and soon after the country now known as Clerke's Plains, further westward, was added to his discoveries.

1846.

In October, 1846, Sir Eardley Wilmot was suddenly recalled from the Government of the Colony, in consequence of secret accusations made against his private character. These accusations were repelled by the Chief Justice and 250 leading members of the community, but had no effect upon the Home Government. Sir Eardley Wilmot died soon after of a broken heart, in consequence of this cruel assault upon his character.

1847.

The Government of the Colony was administered by Mr. Charles Joseph Latrobe in the interval between the departure of Sir Eardley Wilmot and the arrival of Sir William Thomas Denison, Knight, on 25th January, 1847.

One of the first acts of the new Governor was the restoration of the "Patriotic Six" to their seats in the Council. During the term of Sir William Denison's Government the anti-transportation movement was vigorously maintained by the great body of the colonists, and its influence was greatly strengthened by the organisation of a League, which ultimately extended to all the colonies, and became a mighty power in the anti-transportation cause.

1850.

Coal discovered between the Don and Mersey Rivers in March, 1850, and soon after a similar seam of coal was found at Tarleton and the Don.

1850-1853.

The strenuous opposition of the League to further transportation at last began to bear fruit; for in the year 1850 a Bill was passed providing for the establishment of Legislative Councils in Tasmania, South Australia, and Victoria; the latter place having been created a separate colony by the same Act. It was further provided that one-third of the members of the Council were to be nominated by the Crown, and two-thirds to be elected by the people. The significance of this provision was made manifest by the election soon following, by which sixteen gentlemen were returned, nearly all of whom were pledged or opposed to further transportation of convicts to the Colony. The new Legis

lative Council was summoned to assemble on 30th December, 1851, and its first divisions were taken on the subject of transportation; and a majority were successful in moving the adoption of an address to the Queen, remonstrating, strongly but respectfully, on the influx of criminals. The enthusiasm and perseverance of these reformers at last overcame all opposition; for, upon the Aberdeen Ministry coming into power, their first important act of office was to announce (through the newly appointed Colonial Secretary, the Duke of Newcastle, in a despatch dated 14th December, 1852), that transportation had absolutely ceased. It was not, however, until May, 1853, that the official notification appeared in the *Hobart Town Gazette*. Great rejoicing throughout the Colony took place in consequence, and Wednesday, the 10th August, was chosen as a holiday to celebrate the joyful event. This period was also memorable as the fiftieth year of the Colony's history, dating from its foundation in 1803. It marked the beginning of a new era to the Colony. Van Diemen's Land, as a name, disappears, with its evil associations; the Colony thenceforward bearing the name TASMANIA, as a happy omen of the altered conditions in its history.

Other events also occurred about this time which had a most important influence in the ultimate development and progress of the Australasian Colonies. The most important of these was the discovery of gold in payable quantities by Hargreaves, in New South Wales, in the year 1851. The effect of this discovery gave a wonderful impetus to the search for gold in all the colonies: and within a month of the establishment of Victoria as an independent colony it became generally known that rich deposits of gold existed within its borders.

In the year 1852 the first payable gold was found in Tasmania, at the Nook, near Fingal; and about the same time it was also discovered at Tower Hill Creek and in the vicinity of Nine-Mile Springs. In the same year the practical working of the gold fields of New Zealand was first commenced. The extraordinary richness of the Victorian gold fields, however, eclipsed all other discoveries. Tasmania, by its proximity to them, was at once most wonderfully affected. All kinds of products reached fabulous prices, and were exported to Victoria in such quantities that the value of total exports in 1851 of £665,790, reached £1,509,883 in 1852, and £1,756,316 in 1853. Migration of population of all classes from Tasmania to Victoria at once set in in alarming numbers. In 1842 it is estimated that there were nearly 40,000 *adult males* in the Colony; but such was the migration to the Victorian goldfields in 1852, 1853, and 1854, that the *adult males left in the colony were less than* 22,261. It is believed that the great body of ticket-of-leave men took advantage of this movement, as it gave them an opportunity of leaving a place which, however advantageous in other respects, was to them filled with many unhappy associations.

1854.

A Bill to grant retiring pensions to the Judges of the Supreme Court was passed on the 4th May, 1854. The same year Mr. Valentine Fleming, Attorney-General, was appointed Chief Justice in place of Sir John Pedder, who retired upon a pension.

Central Board of Education appointed, consisting of the Members

for the time being of the Executive and Legislative Councils. The number of Members of the Council were increased from 24 to 33; one-third nominated by the Government and two-thirds elected by the people. Sir William Denison retired from the Government of the Colony at the close of this year.

1855.

Early in January Sir Henry Edward Fox Young succeeded Sir William Denison as Governor, the colony being then in a most prosperous condition, and large shipments of a superior class of immigrants (farm servants) arrived to fill the places of those who had left for the Victorian goldfields.

The Queen declared her assent to an "Act to establish a Parliament in Van Diemen's Land, and to grant a Civil List to Her Majesty." Tasmania was thus the first of the Colonies in the Australian group to receive the privileges of Local Representative Government.

1856.

Mr. Adye Douglas advocated a preliminary survey for a railway between Hobart Town and Launceston. Bill passed to enable the Launceston Corporation to supply the town with water.

The first Parliament, consisting of two Chambers of Representatives, both elective, were opened by commission appointed by the Governor, on 2nd December, 1856. The Legislative Council was limited to 15 Members, and the House of Assembly was limited to 30 Members. (A list of successive Ministries is given elsewhere.) The first Ministry consisted of the following Members:—

Colonial Secretary and Premier...	William Thomas Napier Champ.
Colonial Treasurer	Thomas Daniel Chapman.
Attorney-General.....	Francis Smith.
Solicitor-General	John Warrington Rogers.
Minister of Lands and Works	Henry Frampton Anstey.
Without portfolio.....	William Edward Nairn.

1857.

The city of Hobart first lighted with gas. Launceston waterworks completed; water conveyed from St. Patrick's River, 13 miles distant. New Government House completed; cost about £120,000.

1858.

A Tasmanian University proposed by the Rev. R. D. P. Harris. Bill passed appointing a Council of Education, with power to confer the Degree of Associate of Arts; having also the gift of two Scholarships annually, each of the value of £200 per annum, tenable for four years at an English University.

1859.

Rural Municipalities first established. State aid to religious bodies commuted: A Bill to raise a loan of £100,000 was passed to effect this object. First submarine cable laid, *viâ* Circular Head and King's Island, to Cape Otway. The cost was £42,000. This line, however, soon failed, owing to various defects in the cable, and to the nature of the bottom along which it was laid.

1860.

Gold quartz-crushing machinery erected at Fingal. Mr. Charles Gould appointed Government Geologist. Two exploring expeditions appointed by the Government to prosecute a search for gold and valuable minerals, one under Mr. Ronald C. Gunn, to examine the wild north-western country; the other under Mr. Gould, to examine the southern portion of the Island.

1861.

Sir Henry Young retired from the Government of the Colony on 10th December, 1861, and was succeeded by Colonel Thomas Gore Browne, C.B.

1863.

Two tons of Fingal coal sent to Launceston for experimental purposes, which yielded 6900 feet of gas per ton. Agitation throughout the Colony for roads and railways.

1864.

Grant of £106,000 passed by Parliament for roads and bridges. Proposals urged for a railway between Launceston and Deloraine rejected by Parliament. First successful shipment of English salmon ova arrived on 20th April, per *Norfolk*. This Tasmanian experiment demonstrated to the world, for the first time, that it was possible to retard incubation without destroying vitality for a period sufficiently prolonged to cover the transport of ova to the remotest part of the globe. Tasmania, therefore, has reason to be proud of this and her subsequent achievements in acclimatisation.

1865.

Torrens' Act adopted.

1866.

Opening of the new Town Hall, Hobart. The *Lincolnshire* arrived at Hobart with the second shipment of live ova of *Salmo salar*, which were successfully deposited in the hatching-boxes on the River Plenty on the 5th May, 1866. Renewed agitation for the construction of railways and a progressive policy of public works.

1868.

The Duke of Edinburgh turned the first sod of the Launceston and Deloraine Railway on the 15th January.

Colonel Thomas Gore Browne's term of office expired at the end of the year 1868.

1869.

The State Aid Commutation Act received the Royal assent, 1st July, 1869. Mr. Charles Du Cane arrived in the Colony on 12th January, 1869, and on the 14th of the same month he was formally sworn in as Governor. Telegraphic communication by cable across Bass Strait successfully established on the 1st May, 1869. On the 2nd August the Colony was profoundly affected by the death of the Premier, Sir Richard Dry, who was considered to be the most popular

statesman Tasmania ever possessed. He was the first native-born who was elevated to the position of Premier in the responsible Government of the Colony. In December, Sir Valentine Fleming, the Chief Justice, retired on his pension of £1000 per year, and was succeeded by Sir Francis Smith. At the same time the Hon. W. L. Dobson, Attorney-General, was elevated to the Bench. Mr. William Robert Giblin, who only entered Parliament in March, 1869, was appointed Attorney-General. He was the first native of the Colony elevated to that responsible legal office.

1870.

A census of the Colony was taken early in this year, when the returns gave a population of 99,328. Constitution Amendment Act passed, whereby the Legislative Council was increased from 15 to 16 Members, and the House of Assembly from 30 to 32. At the same time the election qualification—leasehold—was reduced from £10 to £7, and—salary—from £100 to £80. Act passed enabling the Tasmanian Main Line Railway Company to construct a line of railway, 3ft. 6in. gauge, between Hobart and Launceston.

1871.

The Launceston and Western Railway was officially opened for traffic by Governor Du Cane on 10th February, 1871.

Mr. James Smith discovered the rich deposit of tin at Mount Bischoff, 4 Dec., 1871. This important discovery marks the beginning of a new era in the mining industry of Tasmania.

1872.

Owing to financial difficulties, the Launceston and Western Railway Company agreed, upon certain terms, to transfer the line to the Government on 3rd August, 1872.

Great dissatisfaction was felt by the landholders of the Launceston and Western Railway District by the attempt to levy a special railway rate upon that district, it being alleged that the projection of the Main Line Railway absolved them from the conditions by which they were formerly bound. Sixty-five northern magistrates appealed to the Governor requesting him to suspend legal proceedings; but the appeal was refused, whereupon twenty-six of the magistrates resigned. Eventually the landholders of the district were unconditionally relieved from the local liability.

Some trouble was also caused in connection with the Main Line Railway Company with respect to the route adopted for the line between Hobart and Launceston.

Direct telegraphic communication with England was established on 20th October.

Several attempts were made to work the extensive iron deposits in the neighbourhood of Ilfracombe. One company spent £80,000 in their operations. Many thousands of tons of pig iron were exported, but the various companies at length relinquished their efforts, as it was found that the element *chromium* rendered the cast-iron so hard and brittle that it could find no purchaser. It is hoped that science will soon

discover some method for getting rid of this difficulty, as the deposits of iron in this district are of immense extent.

1874-1875.

Mr. Charles Du Cane's term of office expired on 28th November; Chief Justice Sir Francis Smith administered the Government until the arrival of the new Governor, Mr. Frederick Aloysius Weld, who arrived in the Colony on the 11th January, 1875.

1874.

The Kennerley Ministry brought forward measures for the construction of main and branch roads, and for the purchase and completion of the Mersey and Deloraine Tramway; and, although favourably considered by the House of Assembly, the measures were rejected by the Legislative Council on two separate occasions.

1876.

The Main Line Railway, between Hobart and Evandale Junction, was opened for traffic in March, 1876, and shortly afterwards trains ran through to the terminus in Cimitiere-street, Launceston, a third rail having been laid for that purpose on the Launceston and Western Line.

Truganini, the last representative of the Tasmanian aborigines, died at Hobart on the 8th May, 1876.

1877.

Sir Robert Officer, who had filled the office of Speaker for fifteen years with much ability, resigned in consequence of advancing age. He was succeeded by Dr. Henry Butler.

This year Mr. Fysh's Cabinet succeeded in passing an important measure for the construction of important public works—roads, bridges, jetties, and telegraph lines—throughout the Colony. The sum voted for this purpose was £140,000. The Local Public Works Act was at the same time repealed, and the local liability, amounting to £31,350, was transferred to the general revenue.

The famous quartz reef now worked by the Tasmania Gold Mining Company discovered by Mr. William Dally in June, 1877.

1879.

The finances of the country, now in an unsatisfactory condition, were successfully dealt with by the Giblin Ministry. The measures proposed for placing the finances in a satisfactory condition received the approval of the country. The new taxes comprised a real and personal estate duty of 9*d.* in the pound upon the annual value of landed property; an excise duty of 3*d.* per gallon on beer; and a revision of the Customs tariff.

1880.

Governor Weld retired from the administration of the Government of the Colony on 5th May, 1880. Sir Francis Smith acted as Administrator until the arrival of Lieutenant-General Sir John H. Lefroy on 21st October, 1880. During his short term of office several important measures were passed in continuation of the policy of opening up the

country by roads and bridges. The proposal to extend the Western Line to the Mersey was, however, twice rejected by a majority in the Legislative Council, after passing the House of Assembly.

1881.

Sir John Lefroy retired from the office of Governor on the arrival of Sir George Cumine Strahan, who assumed the administration of the Colony on the 7th December, 1881. A census of the population was taken on the 3rd April, when the returns showed the number of persons to be 115,705.

1882-1889.

Valuable loads of silver-lead, gold, and copper discovered in the western part of the Island within this period, notably silver-lead at Mount Zeehan in 1885; gold and copper at Mount Lyell in 1886; and silver and lead at Heazlewood River in 1887.

Important extensions of the Government Railway system were projected within the same period. The following new branches were completed and opened for traffic, as follows:—

Year 1885—Deloraine to Formby Extension, 37 miles.
" " Parattah to Oatlands Branch, 4 miles.
" 1886—Corners to St. Mary's Branch, 47 miles.
" 1887-8—Bridgewater to Glenora Branch, 24½ miles.
" 1889—Launceston and Scottsdale Extension, 47 miles.
" 1890—Chudleigh Railway, 13 miles.
" 1890—Ulverstone Extension, 12 miles.

Besides these, the following lines have been authorised:—

Brighton to Apsley, 26 miles (nearly completed).
Sorell Railway, 15 miles " "
Zeehan Line, 29 miles " "

The total number of miles of railway—open or being constructed—in the year 1890 amounted to 470 miles, or 180 miles of railway to every 10,000 miles of territory.

In the year 1886 a new law was enacted greatly extending the franchise. The number of Members in the Legislative Council was increased from 16 to 18, and in the House of Assembly the Members were increased from 32 to 36. At the same time the boundaries of the Electoral Districts were altered for the purpose of bringing the representation of the Colony into greater harmony with the population of the respective Electoral Districts. The House of Assembly electorate is now mainly based upon the occupation or ownership of household property.

Federal Council.

At an important Conference held in Sydney on the 28th November, 1883, when representatives from all the Colonies of Australasia were present, it was agreed that joint action should at once be taken to promote the Federation of the Australasian Colonies, and a draft Bill was then prepared for the constitution of a Federal Council, defining its powers and functions, which, with minor modifications, was subsequently passed into law by the Imperial Act, known as the "Federal Council of Australasia Act, 1885." The scope of the Council's functions

are fairly indicated by the preamble of the Bill which was drawn by the Convention—

"It is expedient to constitute a Federal Council of Australasia for the purpose of dealing with such matters of common Australasian interest, in respect to which united action is desirable, as can be dealt with without unduly interfering with the management of the internal affairs of the several Colonies by their respective Legislatures."

Among the more important matters the following are specified :—The relations of Australia with the islands of the Pacific, influx of criminals, enforcement of judgments of courts of law of any Colony beyond the limits of the Colony, defences, patents, copyright, uniformity of weights and measures, &c. The Council is not empowered to deal with matters relating to customs or tariff.

At the first Session of the Council, held in Hobart in the year 1886[a], all the Colonies of Australasia were represented, with three important exceptions, viz., New South Wales, South Australia, and New Zealand. South Australia soon after was represented in the Council, but the Colonies of New South Wales and New Zealand still hold aloof. Three Sessions altogether have been held in Hobart, in the years 1886, 1888, 1889, respectively, and the more important business transacted were matters relating to Federal Judgments Bill, Civil Process Bill, Corporations Bill, Colonial Defences, Evidence Bill, New Quinea Question, New Hebrides Question, Recidiviste Question, Queensland and Western Australian Fisheries, Separation of North Queensland, Intercolonial Quarantine, Constitution of Council, Affairs in the Pacific, Pacific Cable Question.

In the year 1886 the Hon. W. R. Giblin, Premier, retired from the Ministry, and was appointed to the office of Judge of the Supreme Court, rendered vacant by the retirement of Sir Francis Smith. On the 28th October of the same year Sir G. C. Strahan retired from the governorship of the Colony in consequence of impaired health, and he died soon after in England. His Honor Judge Giblin administered the Government of the Colony until the return of Sir William Lambert Dobson, Chief Justice, from England, in November, 1886, and the latter continued to administer the Government of the Colony until the arrival of Governor Strahan's successor—Sir Robert George Crookshank Hamilton—whose distinguished career is so well known, especially his great services as Under Secretary for Ireland during the very troubled period following upon the assassination of Mr. Burke. His reception on his arrival in Hobart, on 11th March, 1887, was marked with the warmest demonstration of personal esteem throughout the whole Colony. During this interval His Honor Judge Giblin, owing to failing health, was obliged to retire from active work, and soon after, on the 17th January, 1887, he died at his home in Hobart—the place of his birth. Thus, in the prime of manhood (46 years of age), Tasmania

[a] Session called together on the 26th January, 1886, by His Excellency the Governor of Tasmania—Sir George Strahan—in accordance with the express provision of the Imperial Act.

lost one of her most distinguished statesmen. His commanding talents and public and private virtues were such as to endear him to all classes of men, and his loss is still deplored as a national calamity.

The Hon. John Stokell Dodds, Attorney-General, succeeded Mr. Giblin as Judge of the Supreme Court; and the creation of a third Judge having been found necessary, Mr. Robert Patten Adams, formerly Solicitor-General, was appointed to the office.

In the year 1886 the Hon. Adye Douglas, Premier, retired from the Government to assume the office of Agent-General in London, then established. Mr. Douglas held this office untill the year 1888, when he was succeeded by the Hon. E. N. C. Braddon, formerly Minister of Lands.

The new reservoir at Hobart was opened for supply on 11th September, 1888.

Foundation stone of the new Technical School in Hobart was laid by His Excellency Sir Robert Hamilton, on 10th July, 1889.

1890.

An important Convention, composed of representatives of the seven colonies of Australasia, assembled in Melbourne on the 6th February, 1890, for the purpose of determining the whole question of uniting the various Colonies under a central Federal Government. The representatives of the various Colonies thus assembled were as follows:—

New South Wales.....	The Honorable Sir Henry Parkes, Premier New South Wales. The Honorable Wm. M'Millan, Colonial Treasurer, New South Wales.
New Zealand	The Honorable Capt. Wm. Russell Russell, Colonial Secretary, New Zealand. The Honorable Sir John Hall, K.C.M.G., Member House of Representatives, New Zealand.
Queensland	The Honorable Sir Samuel Walker Griffiths, K.C.M.G., Member Legislative Assembly, Queensland. The Honorable John Murtagh Macrossan, Colonial Secretary, Queensland.
South Australia	The Honorable John Alexander Cockburn, M.A., Premier, South Australia. The Honorable Thomas Playford, Member Legislative Assembly, South Australia.
Tasmania	The Honorable Andrew Inglis Clark, Attorney-General, Tasmania. The Honorable Bolton Stafford Bird, Treasurer, Tasmania.
Victoria.....	The Honorable Duncan Gillies, Premier, Victoria, (President of Conference). The Honorable Alfred Deakin, Chief Secretary, Victoria.
Western Australia ...	The Honorable Sir Jas. George Lee-Steere, Speaker Legislative Council, Western Australia.

Secretary to the Conference—Mr. Geo. Henry Jenkins.

The result of the deliberations of this Conference were embodied in the following resolutions agreed upon, which afterwards formed part of an address to the Queen :—

Resolutions agreed upon.

1. That, in the opinion of this Conference, the best interests and the present and future prosperity of the Australian Colonies will be promoted by an early union under the Crown ; and, while fully recognising the valuable services of the Members of the Convention of 1883 in founding the Federal Council, it declares its opinion that the seven years which have since elapsed have developed the national life of Australia in population, in wealth, in the discovery of resources, and in self-governing capacity to an extent which justifies the higher act, at all times contemplated, of the union of these Colonies, under one Legislative and Executive Government, on principles just to the several Colonies.
2. That to the union of the Australian Colonies contemplated by the foregoing resolution, the remoter Australasian Colonies shall be entitled to admission at such times and on such conditions as may be hereafter agreed upon.
3. That the Members of the Conference should take such steps as may be necessary to induce the Legislatures of their respective Colonies to appoint, during the present year, Delegates to a National Australasian Convention, empowered to consider and report upon an adequate scheme for a Federal Constitution.
4. That the Convention should consist of not more than seven Members from each of the self-governing Colonies, and not more than four Members from each of the Crown Colonies.

In accordance with these resolutions, the Parliament of Tasmania, during the Session held in the same year, appointed seven representatives as Delegates to the next National Australasian Convention, empowered to consider and report upon an adequate scheme for a Federal Constitution.

The unsatisfactory relations so long existing between the Government and the Tasmanian Main Line Railway Company terminated in October in the purchase of the line by the Government for a sum of £1,106,500, payable in 3½ per cent. inscribed stock.

The University of Tasmania was established this year. As it was deemed that the objects of higher education would be more satisfactorily promoted by a local University, the Parliament resolved to abolish the Council of Education and the Tasmanian Scholarships, and in lieu thereof to pay a yearly sum as a grant in aid to the University. The Council is composed of 18 members, nine of whom are selected by the Senate of the University, and eight by the Houses of Parliament. The Minister of Education for the time being is a member of the Council *ex officio*. The Senate mainly consists of graduates of the University and Associates of Arts of Tasmania.

Chudleigh Railway and Formby-to-Ulverstone extension opened for traffic during the year.

CHAPTER III.

Constitution and Government.

(A.) General Government.

The Royal assent to the existing system of responsible Government in Tasmania was first proclaimed on the 24th October, 1855. The first responsible Ministry was appointed on the 1st November, 1856, and the first representative Parliament was opened on the 2nd December, 1856.

The principles of the existing system may briefly be stated to have for their object the establishment of such a constitution of Government as would secure to the Colony the full management of its own affairs, with such safeguards as might be considered necessary to prevent the local Legislature from encroaching upon the subject-matters which should belong exclusively to Imperial jurisdiction.

The provisions embodying these principles are contained in Act 18 Vict. No. 17, known as the Constitutional Act, and in the amending Acts subsequently introduced, viz., 23 Vict. No. 23 and 34 Vict. No. 42.

The form of Government consists of a Governor, appointed by Her Imperial Majesty; an Executive Council, appointed by the Governor; and a Legislative Council and House of Assembly, elected by the people. The "Parliament of Tasmania," properly constituted, consists of the Governor, the Legislative Council, and the House of Assembly, taken together. Although not directly expressed by any one clause in the Constitution, or in the Standing Rules and Orders of both Houses approved by the Governor, all enactments binding in law must have passed both Houses of Parliament and have received Her Majesty's assent through the Governor or otherwise.

POWERS OF THE GOVERNOR.

The powers and authorities of the Governor and Commander-in-Chief of the Colony and its dependencies are at present determined and defined by Letters Patent, dated 17th June, 1880, passed under the Great Seal of the United Kingdom, and by instructions passed on the same day under the Royal Sign Manual and Signet.

Among the more important functions and powers of the Governor may be enumerated the following, viz. :—

> The lawful assent to Bills passed by both Legislative Houses; the custody of the public seal of the Colony; the appointment, according to law, of the Members of Executive Council, Ministers of the Colony, Judges, Commissioners, Justices of the Peace, and other necessary officers. Should he think fit, the Governor may, for the detection of crime or otherwise, grant pardons, or respite or remit the sentences of criminals convicted before any court or before any judge or magistrate; but he may not banish criminals from the Colony, except in the case of political offenders.
>
> The Governor is also empowered to remit any fines, penalties, or forfeitures due to the Crown.

At such times as he thinks fit, the Governor may summon or prorogue both Houses of Parliament; provided, however, that the period of twelve calendar months from the close of last session shall not have expired before a new session shall have been summoned. He may lawfully dissolve the House of Assembly at any time; but he cannot exercise this power with respect to the Legislative Council, the Members of which may hold their seats until the expiry of their full term of six years from date of election.

RIGHT OF VETO.

As regards "the right of veto," the Governor has no power so called, although he may *refuse assent* to any Bill passed by the local Legislature which in any way contains provisions affecting the following matters, viz.:—The divorce of married persons; grants of land, money, donations, or gratuities to himself; the currency; the imposition of differential duties other than as allowed by the Australian Colonies Act, 1873; the introduction of provisions which shall appear inconsistent with obligations imposed upon Her Majesty's Imperial Government by treaty; provisions which interfere with the discipline or control of Her Majesty's forces in the Colony by land or sea; provisions of an extraordinary nature and importance whereby Her Majesty's prerogative or the rights of British subjects not residing in Tasmania, or the trade and shipping of the United Kingdom and its dependencies, may be prejudiced. The Governor may further refuse assent to any Bill containing provisions in respect of which Her Majesty's assent has been once refused.

In cases of extreme urgency, however, the Governor is empowered to assent in Her Majesty's name to any such Bill, provided that its provisions shall not be repugnant to the laws of England, or inconsistent with any obligations imposed upon Her Majesty's Government by treaty. In every such case the Governor is required to transmit to Her Majesty by the earliest opportunity the Bill so assented to, together with his reasons for so doing.

LIMITATION TO THE POWER OF THE GOVERNOR.

In the execution of the powers and authorities granted to the Governor, it is determined, by the instructions already referred to, that he shall in all cases consult with the Executive Council, excepting only in cases which are of such a nature that, in his judgment, Her Majesty's service would sustain material prejudice by consulting the said Council thereupon, or where the matters to be decided upon are too unimportant to require their advice, or too urgent to admit of their advice being given by the time within which it may be necessary for him to act. In all such urgent cases, however, he is required to communicate to the said Council the measures which he may so have adopted, with the reasons thereof.

The Governor may also in extreme cases act independently or even in opposition to the advice of the Executive Council, if he shall deem it right to do so; but in any such case he is required to report the matter to Her Majesty by the first convenient opportunity, giving the grounds and reasons of his action.

In regard to the exercise of the functions of Royal clemency in respect of persons condemned to death, the Governor shall not pardon or reprieve any such offender without the advice of the Executive Council, and without first calling upon the judge who presided at the trial to report upon the case. This report must be taken into consideration by the Executive Council, before whom the particular judge referred to may be summoned to attend and to produce his notes. Notwithstanding this, the Governor must finally act according to his own deliberate judgment, whether the Members of the Executive Council concur therein or otherwise. Where the decision of the Governor is in opposition to the judgment of the majority of the Members of the Executive Council, he is required to enter on the minutes of the said Executive Council a minute of his reasons for so deciding at full length.

The Governor may not quit the Colony for more than one month at a time without having first obtained leave from Her Majesty.

By virtue of a commission issued under Her Majesty's Sign Manual in the year 1880, it is provided, in the event of the death, incapacity, or removal of the Governor, or of his departure from the Colony, that the Chief Justice, or, in his absence, the Senior Judge for the time being, shall assume the office of Administrator of the Government.

THE LEGISLATIVE COUNCIL OR UPPER CHAMBER.

The Constitution and Powers of the Legislative Council.

The Legislative Council was originally designed as a check upon the more democratic branch of the Legislature.

The framers of its constitution, however, based it upon the elective principle, as it was considered by them that the liberties of the people would be jeopardised by vesting great power in a small and irresponsible body appointed according to the nominee system. To secure a greater measure of cautious deliberation and a more effective resistance to needless or harmful change than might be expected from the less conservative body, it was thought that it was only necessary (1) to restrict the franchise for the Upper House mainly to those who represent freehold property; (2) to broaden the area of the Electoral District; (3) to secure that the Members be elected for a longer period than the Lower House. Accordingly, the existing Legislative Council now consists of eighteen elected Members, representing fifteen defined Electoral Districts. It is presided over by one of their number elected by themselves. Every properly qualified Member may hold his seat for the period of six years, and the Council, as such, cannot be dissolved at any time. Originally, the constitutional powers and privileges of the Council were much more restricted. The number of Members was limited to fifteen, and it was imperative that a dissolution of one-third of the whole Council should take place at the end of every three years; the Members who thus retired consisting of such as held their seats continuously for the longest period. The original intention of the framers of this Act, however, was frustrated to some extent by certain of those who should naturally retire at the regular period electing to resign at a time just sufficiently distant from the end of the period to admit of their re-election. The provisions now in force prevents this

objectionable course, and has the effect of causing one-sixth of the Council to appear before their constituents every year for re-election.

The Legislative Council may, within constitutional limits, *originate* legislation in respect of any matter, with the exception of Bills for the appropriation of any part of the revenue, or Bills for imposing any tax, rate, duty, or impost. Although the Constitution Act limits the privileges of the Legislative Council as regards the *origination* of all Bills for appropriating any part of the revenue, or for imposing any tax, rate, duty, or impost, it is empowered by Clause xxix. of the Constitution Act to make Standing Orders for regulating business and for determining the manner in which Bills shall be introduced, passed, numbered, and intituled, and for the proper presentation of the same to the Governor for Her Majesty's assent, and generally for the conduct of all business and proceedings of the said Council. Thus, apart from the limitation in respect of the *origination* of Money Bills, the significance of which in itself is a source of confusion,* the Constitution Act leaves to either branch of the Legislature the difficult task of determining the form and extent of their own relative legislative powers and privileges.

The Legislative Council, by virtue of its adopted Standing Rules, has formed its system of procedure more in accordance with the powers and privileges of the House of Commons than with the House of Lords, and, consequently, as regards the modification of the details of all Bills introduced, it claims to be co-ordinate in legislative power with the House of Assembly.

THE CONSTITUTION AND POWERS OF THE HOUSE OF ASSEMBLY.

The constitution of the House of Assembly, based mainly on the principle of household suffrage and limited wages qualification, consists of 36 members, representing 28 distinct electoral districts. Every Assembly shall continue for five years from the day of the return of the writs for choosing the same, subject, nevertheless, to be sooner dissolved by the Governor.

It is thus more widely and directly representative than the Legislative Council, whose base of suffrage is mainly upon freehold property ownership. It is especially the *responsible* Representative Chamber, inasmuch as a general appeal to the country, the result of an adverse vote to the Ministry of the day, may bring each Member before his constituents at any time. Naturally, therefore, as described by one of the principal framers of the constitution (Sir R. Dry), it reflects rapidly and instinctively the current life and aspiration of the whole people, and, as a consequence, the initiation of nearly all movement, progress, and innovation takes place within its walls.

In the House of Assembly originate all Bills for appropriating any part of the revenue, or for imposing any tax, rate, duty, or impost; always provided that all votes or Bills in respect of such money matters shall in the first place be recommended by the Governor (*i.e.*, the responsible Ministry of the day) during the Session in which such vote, resolution, or Bill shall be passed.

Although the legislative powers of the House of Assembly are in practice little more than co-ordinate with those of the Legislative

* See Todd's Parliamentary Government in the Colonies, pp. 447, 500. See also "Constitutional Functions of a Legislative Council"—Paper 112, House of Assembly, Tas., 1881.

Council, its responsibilities are immeasurably greater. For while each individual Member of the Legislative Council need only come before his constituents individually, yet the Council, in itself, may now be said to be permanently established, and quite independent of the Executive or of any constituency.

The House of Assembly, on the contrary, both individually and collectively, must certainly be brought before the electors once in every five years, while it is also individually and collectively liable to dissolution at any time. For these reasons, it is tacitly assented in practice to be fit and proper that all important monetary measures should originate in the more directly responsible House of Assembly; while the exercise of those necessary functions, which might be impaired by timidity or by unduly casting side-glances at consequences personal to individual Members, is more fitly carried on in the more protected sphere of the Legislative Council.

SETTLEMENT OF DIFFERENCES ARISING BETWEEN THE TWO REPRESENTATIVE HOUSES.

There is no constitutional provision for the final settlement of serious differences, should they arise, between the two Representative Houses. That no serious or prolonged deadlock in politics has resulted hitherto from this want is, in a large measure, due to the circumstance that a spirit of conciliation and compromise has always pervaded the leading statesmen of both Houses.

It may seem extraordinary that the two Houses, almost co-ordinate in power, but differently constituted as regards representation and responsibility, should not have more seriously paralysed each other's operations hitherto; but a reference to the qualifications of their respective electors show that, in a large measure, the same individuals and the same interests are common to them both, and in this way a common pressure is brought to bear upon individual Members of the Legislative Council when the general feeling is strong in favour of certain schemes brought under their consideration. Indirectly, therefore, the element of a common representation conduces to lessen the friction caused by the differences or independent action of the respective Houses in dealing with matters of legislation. Possibly another reason why "deadlocks" of an inconvenient nature have been avoided hitherto may be due to the very circumstance that the powers assumed by the Legislative Council in amending or eliminating any item of a Money or other Bill, *without rejecting it as a whole*, prevent the abuse of tacks to Bills of Supply, which have occasionally caused so much trouble elsewhere.

It must be clearly understood, moreover, that although the Legislative Council claims to have powers co-ordinate with the House of Assembly in altering or amending Money Bills when presented, and although the latter branch have in practice tacitly assented to the claims of the Upper House, under ordinary circumstances it must be confessed that there is a division of opinion between the Members of both Houses generally as regards the strict legality of the claims and practice of the Upper Chamber in respect of Bills dealing with money matters.

Judging from frequently expressed opinion, and from the practice and relations which have hitherto prevailed, it would seem that the more democratic Chamber tolerates or accepts, under protest, what is

deemed by them an encroachment upon their rightful and exclusive privileges, where the modifications introduced by the Upper Chamber are small or unimportant; but on several occasions, when the matters so dealt with were of more than ordinary importance, somewhat rancorous feelings have been aroused.

Therefore, it may be urged by some that, so long as a legitimate mode of terminating any seriously prolonged difference of opinion between both Houses is lacking, the constitution is theoretically imperfect, and serious difficulty may yet arise.

To many minds it may seem to be too hazardous to rely entirely upon the chance existence of that spirit of conciliation and compromise which has fortunately prevented serious difficulties hitherto.

QUALIFICATION OF MEMBERS.

No person is capable of being elected a Member of either branch of the Legislature who is not a natural-born or naturalised subject of Her Majesty, or who has not received letters of denization or a certificate of naturalization. In addition, no person is capable of being elected who is under the age of 30 years for the Legislative Council, and under 21 years for the House of Assembly.

The following list of disqualifications also applies to both Houses as regards the election of persons or the right of membership, viz.:—

(1.) All Members who shall accept any office of profit or any pension from the Government, Ministerial offices excepted.

(2.) Provided the contract be not one generally entered into by any incorporated or trading company of more than six persons, all contractors* with the Government, directly or indirectly, for or on account of the public service.

(3.) Failing to give attendance in Parliament for one entire session, without formal permission.

(4.) Declaring allegiance or subjection to any foreign Prince.

(5.) Holding the office of Judge of the Supreme Court.

(6.) Members who shall become bankrupt or shall take the benefit of any law relating to insolvent debtors, or become public defaulters, or be attainted of treason, or be convicted of felony or any infamous crime, or shall become of unsound mind.

QUALIFICATION OF ELECTORS.

(1.) *For the Legislative Council.*

The following persons are entitled to vote at the election of a Member to serve in the Legislative Council, viz.:—

Every man of the age of 21 years, being a natural-born or naturalized subject of Her Majesty, and every man of the like age who has received letters of denization or a certificate of naturalization—

(*a*) Having a freehold estate in possession,† legal or equitable, of the clear annual value of twenty pounds sterling money.

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* Does not apply to purchase, sale, or lease of lands or hereditaments.

† Located or residing, as the case may be, in the district for which the vote is to be given.

(*b*) Having a leasehold estate in possession* of the annual value of eighty pounds.
(*c*) Being a graduate of any university in the British dominions, or an Associate of Arts in Tasmania.*
(*d*) Being a barrister or solicitor on the roll of the Supreme Court of Tasmania.*
(*e*) Being a legally qualified medical practitioner.*
(*f*) Being an officiating minister of religion.*
(*g*) Being an officer or retired officer of Her Majesty's Land or Sea Forces not being on actual service.*

(2.) *For the House of Assembly.*

The following persons are entitled to vote at the election of a Member to serve in the House of Assembly only :—

Every man of the age of 21 years, being a natural-born or naturalised subject of Her Majesty, and every man of the like age who has received letters of denization or a certificate of naturalization—

(*a*) If his name is included in the Assessment Roll as the owner or occupier of any property.*
(*b*) If he is in receipt of income, salary, or wages at the rate of sixty pounds sterling a year, and has received income, salary, or wages equal to thirty pounds sterling during the period of six months next before the first day of November in any year.* A house allowance or rations to be regarded as wages. House allowance, legal value, £10 per year ; rations, £20 per year ; both, £30 per year.

NUMBER OF ELECTORS, ETC.

The limits of the franchise for both Houses of Parliament, as shown in the foregoing abstracts of the "Qualification of Electors," was greatly extended by special enactment in the year 1884. The present franchise for the House of Assembly practically embraces all males of mature age who are not either paupers or criminals. The mode of election is by ballot. The following table shows the effect of the old system of franchise as contrasted with the extended franchise now in operation :—

MEAN POPULATION—1884, 125,352 ; 1890, 143,734. ESTIMATED NUMBER OF MALES, 21 YEARS AND OVER—1885, 34,221 ; 1890, 39,239.

Particulars.	1884.		1890.	
	Upper House.	Lower House.	Upper House.	Lower House.
Districts	13	32	15	28
Members	16	32	18	36
Electors	3350	16,897	6451	25,932
Ditto per Member	209	528	358	720
Ditto per cent. to total mean Population..	2·64	13·29	4·50	18·08
Ditto per cent. to Males 21 years and over	9·85	49·69	16·65	64·89
Percentage of Electors who exercised privilege at or since last General Election (contested seats)	69·06	61·12	64·67	77·06

* Located or residing, as the case may be, in the district for which the vote is to be given.

HOUSE OF ASSEMBLY.

The following table gives more extended information with respect to the constitution of the House of Assembly before and after the passing of the "Constitution Amendment Act, 1885":—

HOUSE OF ASSEMBLY—MEMBERS AND VOTERS.

	1882.			1886.			General Election 1891.	
	Members.	Voters.	Votes polled.	Members.	Voters.	Votes polled.	Voters.	Votes Polled.
Brighton	1	339	...	1	590	434	739	545
Campbell Town	1	309	142	1	363	225	434	313
Clarence[a]	1	187	...	...	...	...	...	...
Cressy[b]	...	...	...	1	271	...	310	...*
Cumberland	1	347	199	1	541	...	1754	742
Deloraine	1	527	...	1	791	486	828	547
Devon, East	1	716	...	2	1290	1521	2132	1222
„ West	1	583	...	1	1013	693	1351	768
Evandale[c]	...	...	...	1	500	...	782	508
Fingal	1	533	...	1	524	...	944	...*
Franklin	1	371	294	1	714	...	760	...*
George Town	1	342	...	1	782	...	571	...*
Glenorchy	1	421	...	1	1082	...	1110	869
Glamorgan	1	114	...	1	311	220	364	244
Hobart,[d] North				2	1703	1358	1929	1429
„ South				2	1345	1010	1488	1173
„ West				2	1722	1324	1820	1309
„ Total	5	3854	2147	6	4770	3692	5237	3911
Kingborough	1	636	387	2	1537	1747	1969	1179
Launceston,[e] North				2	1413	1632	1715	1022
„ South				2	1695	1437	2031	1275
„ Total	3	2480	...	4	3108	3069	3746	2297
Longford[f]	...	...	...	1	502	...	493	...*
Morven[g]	1	271	...	...	...	...	...	...
New Norfolk	1	299	...	1	594	486	700	532
Norfolk Plains[h]	1	367	248	...	...	...	...	...
Oatlands	1	450	...	1	538	...	549	...*
Queenborough[i]	1	358	...	...	...	...	...	...
Richmond	1	251	196	1	428	349	515	...*
Ringarooma[j]	...	...	...	1	1022	664	1132	542
Ringwood[k]	1	168	95	...	...	...	...	...
Selby	1	759	...	1	822	...	1005	633
Sorell	1	529	276	1	681	...	843	...*
Wellington	1	707	...	2	1550	1013	1740	978
Westbury	1	601	...	1	742	...	809	564
	32	16,419	...	36	25,066	14,599	30,817	16,394

* Members returned unopposed.

The Constitution Amendment Act of 1885 abolished the old districts [a g h i] and [k], and modified those of [d] and [e]. The new districts established are marked [b c f] and [j]. All the boundaries of older districts were considerably modified, so that strict comparison cannot be made. The number of Members was increased by 4, and the franchise was greatly extended.

LEGISLATIVE COUNCIL.

The following abstract for the years 1883 and 1890 shows the difference of the constitution of the Council and the number of voters caused by the passing of the "Constitution Amendment Act, 1885":—

LEGISLATIVE COUNCIL—MEMBERS AND VOTERS.

	1883.		1890.		Last contested Election.	
	Members.	Voters.	Members.	Voters.	Polled at Election.	Date.
	No.	No.	No.	No.	No.	
Buckingham	1	251	1	545	414	6 May, 1890
Cambridge	1	128	1	313	...	...
Derwent	1	195	1	245	163	7 May, 1889
Hobart	3	658	3	1146	613	4 May, 1885
Huon	1	144	1	260	114	29 April, 1882
Jordan[a]	1	233	...	...	...	...
Launceston[b]	...	...	2	960	422	1 July, 1886
Longford[c]	1	150	...	...	...	...
Macquarie[d]	...	...	1	282	156	6 May, 1890
Meander	1	214	1	387	...	...
Mersey	1	316	1	609	136	12 Feb. 1881
North Esk	1	215	1	310	...	...
Pembroke	1	201	1	291	297	13 July, 1886
Russell[e]	...	...	1	244	92	2 July, 1881
South Esk	1	207	1	331	...	...
Tamar	2	546	1	319	159	7 May, 1889
Westmorland[f]	...	...	1	209	...	...
	16	3458	18	6451	3785	...

[a c]—These districts were abolished by Constitution Amendment Act, 1885. [b d e f]—Fresh districts created, ditto. The boundaries of all districts were also modified and the franchise extended: strict comparisons in respect of districts cannot therefore be made.

(B.) LOCAL GOVERNMENT.

MUNICIPALITIES AND POLICE DISTRICTS.

For purposes of Local Government,* the Colony of Tasmania is divided into 34 distinct districts, 21 of which are municipalities, and 13 are police districts. The latter, however, are still directly under the control of officers appointed by the Central Government.

The following table gives fuller particulars regarding the area, population, and relative extent of the several divisions:—

* Cross and by-roads, ports and lighthouses, rabbit destruction, hospitals, &c. are also more or less under control of local bodies. There is also a law passed in 1884 granting powers to rural "Town Boards" within Police Districts somewhat similar to those enjoyed by existing municipalities.

MUNICIPAL AND POLICE DISTRICTS.

	Municipalities.		Police Districts.	Total.
	Urban.	Rural.		
Districts ..... No.	2	19	15	36
Area ..... square miles	7·36	11,152·49	15,055·15	26,215
Per cent. to total	·3	42·54	57·43	100
Population, 1891 ..... No.	42,113	46,574	57,980	146,667
Per cent. to total	28·57	31·97	39·46	100
Valuation of property, 1890.....	£303,134	£427,396	£256,026	£986,556
Ditto per cent. to total	30·70	43·36	25·94	100

URBAN MUNICIPALITIES.

Each of the urban municipalities is governed by a council composed of nine elected aldermen, one of whom is chosen as mayor by the said aldermen on the last Friday in December in each year. Three aldermen who have been longest in office without re-election retire, but are eligible for re-election. The election of three aldermen to supply the vacancies takes place in each year on the preceding day. The mode of election is by ballot.

Persons entitled to vote at Elections of Aldermen of Urban Municipalities.

Every male of the full age of 21 years named in the assessment roll for the time being in force as the occupier of any land or building, or any portion of any building, of the annual value of eight pounds or upwards, is deemed to be a citizen, and all such who have paid all municipal rates payable up to the day of election shall be entitled to vote at the election of aldermen according to the following scale, viz. :—

	Number of Votes.
£8 and under £40	1
£40 „ £80	2
£80 „ £120	3
£120 „ £160	4
£160 „ £200	5
£200 „ £240	6
£240 and upwards	7

Qualifications of Mayor and Aldermen.

Every citizen who is entitled to vote at the election of aldermen, and is seised of real estate, or possessed of some chattel interest therein, to the amount of five hundred pounds, or assessed under an existing assessment for the city in respect of property of the annual value of not less than one hundred pounds, shall be qualified to be elected an alderman.

The following persons are expressly disqualified, viz. :—Judges, chairmen of courts of justice, clergymen, any person holding any office of profit under the Crown, or in the gift or disposal of the municipal

council other than that of mayor, officers of the army or navy on full pay, persons interested directly or indirectly in any contract connected with the corporation, with the exception of joint stock companies, shareholders or proprietors,* declared insolvents, aldermen who are absent from city for more than three months except in case of illness.

RURAL MUNICIPALITIES.

Form of Government.

The government of each rural municipality is somewhat similar to that described in respect of urban municipalities, with the exception that the members elected are termed councillors. The number elected of such is limited to seven, one of whom is chosen by the council, for a yearly period only, as principal, under the title of warden. Two councillors who have been longest in office without re-election shall retire, save that in every third year the three who have been longest in office without re-election shall retire. Those who thus retire are eligible for re-election.

Persons entitled to vote at Elections of Councillors in Rural Municipalities.

The following persons are qualified to vote at elections of councillors :—

Every male or female of the age of 21 years and over whose name is on the assessment roll, and who has paid all municipal rates due before four o'clock of the day prior to day of election—

(*a*) Holding property within the municipality.

(*b*) Being an occupier of property within the municipality.

The following is the scale according to which the various classes of electors may vote, viz. :—

Annual Value of Property.			Number of Votes.
Under		£30	1
£30	,,	£80	2
£80	,,	£160	3
£160	,,	£240	4
£240	,,	£360	5
£360	,,	£460	6
£460 and over			7

Qualification of Councillors for Rural Municipalities.

The following persons are qualified to be elected as councillors of any rural municipality, viz. :—All properly qualified electors, provided that they are not judges, clergymen, persons holding any office or place of profit in the disposal of the municipal council other than warden, being a councillor of more than one municipality ; persons directly or

* All such are liable to a penalty of not less than fifty and not exceeding one hundred pounds, and shall be further liable to be disqualified for seven years after conviction of any such offence from holding any office in or under the corporation.

† Any one person can only vote in respect of one qualification within the same district.

indirectly interested in any contract* with the municipality, shareholders or proprietors of joint stock companies as such excepted; all such are disqualified from being elected as councillors.

POWERS AND FUNCTIONS OF MUNICIPAL COUNCILS.

Subject to the approval of Parliament, each municipal council may make and amend bye-laws for the purpose of regulating all matters properly pertaining to Local Government within the limits of its own municipality, to enable municipalities to carry on their functions effectively. They are empowered, within definite limits, by Parliament, to assess property, levy rates and fees, borrow money, make contracts, and otherwise provide for necessary revenue and expenditure. Rural municipal accounts are yearly audited by the Auditor-General. Urban municipal accounts are still audited by officers appointed by the electors of the particular district; but the system of appointing local auditors is open to many objections, and, consequently, there are frequent appeals made in the local newspapers to have all municipal accounts placed yearly under the examination of the Auditor-General, whose system of check upon the rural municipal accounts is most effectual, and meets with general approval.

During the year 1889 the rates in rural municipalities ranged from 6*d.* to 1*s.* 4*d.* in the £1; in urban, exclusive of gas and water, the maximum rate was 2*s.* 5*d.* in the £1. The taxation in municipalities altogether, during 1889, represents 16·30 per cent. of total taxation, general and local, which amounts to 67·86*s.* per head of mean population for the year. The police force within each municipality is under the immediate control of the warden or mayor. The Central Government merely exercises supervision, and grants supplementary aid, if necessary, to keep the local force up to a given standard of strength and efficiency.

The police force in police districts, known as the "Territorial Police," is immediately under the control of the Central Government.

FUGITIVE OFFENDERS.

With respect to fugitive offenders, the Act of the Tasmanian Parliament (41 Victoria, No. 29), "The Extradition Act, 1877," provides that all powers vested in and acts authorised or required to be done by a police magistrate, or any justice of the peace, in relation to the surrender of fugitive criminals in the United Kingdom, under "The Extradition Acts, 1870 and 1873," (England), should be vested in, and might be exercised and done by, the police magistrates at Hobart and Launceston respectively, in relation to the surrender of criminals under the said Acts. This Act came into force on the second day of July, 1878.

With the object of facilitating the apprehension of offenders escaping to the Colony of Tasmania from the other Australian colonies, the "Fugitive Offenders Act, 1881," (England), is applicable to Tasmania in common with the rest of the Australian colonies.

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* All such, as councillors, are further liable to a penalty not exceeding fifty pounds for any such offence, and are disqualified for seven years after conviction from holding any office in or under such municipality.

Extent of the Application of the Laws of England to Tasmania.

With reference to this subject, the Act of the Imperial Parliament (9 George IV., chapter 83), known as "The Huskisson Act," provides that all laws and statutes in force within the realm of England at the time of the passing of that Act be applied in the administration of justice in the courts of the Colony of Tasmania, so far as the same could be applied within the said Colony; and as often as any doubt should arise as to the application of any such laws or statutes, that it should be lawful for the Legislature to declare whether such laws or statutes should be deemed to extend to the Colonies, and to be in force within the same, or to make and establish such limitations and modifications of any such laws or statutes within the Colony as might be deemed expedient.

Scope and Machinery of Government.

Scope of General Government.

In Tasmania, as well as in other self-governing Colonies, the scope of general government—owing to the peculiar condition of lands thinly populated, with vast undeveloped areas—embraces many functions which it would be impossible to resign to private enterprise as in older countries. Roads, Railways, Bridges, and Harbours must be provided *in advance of the settler*, and hence such service must in their initial stages be promoted by the central government; for at this stage the development of the lands open for selection could not be profitably advanced by private or local enterprise.

Hence it has been found necessary to embrace such public works as among the most important functions of the *general government* of the Colony. Unless this fundamental distinction of the scope of the general government in old and new countries be thoroughly considered and allowed for, all comparisons relating to the proportion and cost of services and public debt between countries so differently conditioned would be worse than useless. In young countries the greater proportion of the cost of general government is connected with service of distribution or communication—such as Railways, Roads, Bridges, Harbours, Post and Telegraphs—and these depend upon area, and not population. In old countries the greater part of these services is and can be more advantageously left to *private enterprise or to local government.*

No comparison of the cost of *general government* in old and young countries could, therefore, be instituted that would not lead to the most absurd conclusions if these differing conditions respecting functions of government be not first carefully reckoned with.

This is best appreciated by contrasting the proportion of expenditure incurred in special Public Works and special Services (Railways, &c.) in Tasmania and the United Kingdom.

Scope of the Functions of General and Local Government in Tasmania compared with similar Functions discharged by the General and Local Government of the United Kingdom.

	ACTUAL.								RELATIVE.			
	United Kingdom, (000's omitted.)				Tasmania, 1890.				United Kingdom.		Tasmania.	
	General Government.	Local Government.	Private Railway Coy.'s.*	Total.	General Government.	Local Government.	Private Railway Coy.'s.	Total.	Per cent. to Total.	Per Head.	Per cent. to Total.	Per Head.
	£	£	£	£	£	£	£	£		s. d.		s. d.
Revenue.												
Taxation—												
Customs	20,424	..	..	20,424	329,067	..	..	329,067	8·64	10 10	32·22	45 9
Excise	24,160	..	..	24,160	15,636	..	..	15,636	10·22	12 9	1·54	2 2
Other Taxes	28,830	46,593	..	75,423	109,728	88,830	..	198,558	31·90	39 10	19·44	27 8
Total Taxation	73,414	46,593	..	120,007	454,431	88,830	..	543,261	50·76	63 5	53·20	75 7
Special Public Services—												
Railways	..	..	80,006	80,006	102,642	..	84,292	186,934	33·84	42 4	18·31	26 0
Post and Telegraph	11,770	..	..	1,770	60,102	..	..	60,102	4·98	6 3	5·88	8 4
Other Public Services	3411	..	..	3411	24,803	..	..	24,803	1·44	1 9	2·43	3 6
Total Special Public Services	15,181	..	80,006	95,187	187,547	..	84,292	271,839	40·26	50 4	26·62	37 10
Lands, Buildings, and Public Investments—												
Land Sales	430	4805	..	5514	47,319	..	..	47,319	..	..	4·63	7
Rents					35,805	..	..	35,805	2·33	2 11	2·51	5 0
Investments, &c.	279				10,617	..	..	10,617	..	..	1·04	1 6
Total Lands, Buildings, &c.	709	4805	..	5514	93,741	..	..	93,741	2·33	2 11	9·18	13 1
Other sources	..	15,716	..	15,716	22,381	89,897	..	112,278	6·65	8 4	11·00	15 7
Total Revenue	89,304	67,114	80,005	236,424	758,100	178,727	84,292	1,021,119				
Per cent. to Total	37·77	28·39	33·84	100·00	74·22	17·53	8·25	100·00	100·00	..	100·00	
Per Head s. d.	47 3	35 6	42 3	125 0	105 5	24 10	11 10	142 1	..	125 0	..	142 1
Expenditure.												
General Administration	19,729	..	..	19,729	71,025	..	..	71,025	8·45	10 5	7·20	9 10
Railways	..	..	42,361	42,361	85,802	..	81,685	167,487	18·14	22 5	16·97	23 4
Post and Telegraph	8303	..	..	8303	67,754	..	..	67,754	3·55	4 5	6·86	9 5
Other Public Services	32,782	67,452	..	100,234	250,088	182,537	..	432,625	42·93	53 0	43·83	60 2
Interest on Investments, &c., including Guarantees and Dividends disbursed	25,269	..	37,644	62,913	248,077	..	..	248,077	26·93	33 3	25·14	34 6
Total Expenditure	86,083	67,452	80,005	233,540	722,746	182,537	81,685	986,968				
Per cent. to Total	36·86	28·88	34·26	100·00	73·22	18·50	8·28	100·00	100·00	..	100·00	
Per Head s. d.	45 6	35 8	42 4	123 6	100 6	25 5	11 4	137 3	..	123 6	..	137 3

* All railways in England are in private hands.

Thus, in the United Kingdom, Railways, Roads, and other Public Services do not form a charge upon general government, as they are mostly undertaken either by private enterprise or by local government; and the proportion of the total expenditure left to the general government only amounts to 36·86 per cent. of the total expenditure of the general government, or 45*s.* 6*d.* per head of the population; whereas in Tasmania such services are mostly borne by the general government, and form as much as 73·22 per cent. of its total expenditure, or 137*s.* 3*d.* per head of the population. The cost of ordinary Civil Service departments in the respective countries shows that the greater population involves the greater relative expenditure; Tasmania being 9*s.* 10*d.* per head, and the United Kingdom being 10*s.* 5*d.* per head.

This analysis clearly shows that unqualified comparisons between countries so differently conditioned usually result in confusion or self-deception.

Civil Service of Tasmania.

In the year 1889 the salaries and wages of the Civil Service proper, including wages of workmen employed on Railways and other daily or weekly-wage servants, amounted to £219,838, or about 32·24 per cent. of the total expenditure. The whole of the officers earning *salaries* and *wages* (including the Governor, Ministers, and Judges) number 2308 persons, with an average of £95·25 per head. Of these, 1541, or 66·77 per cent., have salaries under £100 per year, averaging £42·61 per head, largely made up of persons serving in the smaller offices of the Post and Telegraph Departments in country districts. Salaries under £200, together with wages of workmen on railways, messengers, &c. absorb £154,867, or about 70·45 per cent. of all wages and salaries.

Of the 2308 officers referred to, the following table gives fuller particulars regarding the proportions under various salary groups:—

PROPORTION of Salaries and Wages under various groups, year 1890.

Salary.	Officers.	Salaries.	Per cent. Officers.	Per cent. Salaries.	Mean rate of Salary.
£ £	No.	£			£
1 and under 100	1541	75,672	66·77	34·42	42·61
100 " 200	602	79,195	26·08	36·03	131·55
200 " 300	74	16,516	3·20	7·51	223·18
300 " 400	32	10,475	1·39	4·76	327·34
400 " 500	29	12,280	1·26	5·59	426·20
500 " 600	12	6200	0·52	2·82	516·66
600 " 700	7	4250	0·30	1·93	607·28
700 and over*	11	15,250	0·48	6·94	1386·36
	2308	219,838	100·00	100·00	95·25

* Includes 4 at £900, 2 at £1200, 1 at £1250, 1 at £1500, 1 at £5000.

FORM OF GOVERNMENT IN AUSTRALASIAN COLONIES COMPARED.

The following information respecting the forms of Representative Government in the several Colonies of Australasia for year 1890 may be of additional interest:—

Representative Government in the various Colonies of Australasia compared.

Legislative Council (Upper Chamber.)

COLONY.	Area—No. of Square Miles.	No. of Members.	No. of Districts.	No. of Electors.	Constituencies.						Area—Square Mile		Population		Duration of Term in Years.
					1 Member.	2 Members.	3 Members.	4 Members.	5 Members.	6 Members and over.	Per Member.	Per District.	Per Member.	Per District.	
Victoria	87,884	48	14	151,803	...	...	8	6	...	...	1848	6277	23,302	79,893	6
N. S. Wales	310,700	67	1	...	...	...	...	...	...	1	4637	310,700	16,445	1,101,839	Life
Queensland	668,497	40	1	...	...	...	...	...	...	1	16,712	668,497	10,368	414,717	Ditto
S. Australia	903,690	24	4	33,265	...	...	...	...	...	4	37,654	225,923	13,356	80,138	3
W. Australia	1,060,000	15	1	...	*	*	*	*	*	1	70,666	1,060,000	3008	45,117	6
Tasmania	26,215	18	15	6451	13	1	1	...	...	...	1456	1748	7898	9558	6
New Zealand	104,471	39	1	...	...	...	...	...	...	1	2679	104,471	16,039	625,530	Nom. life
All	3,161,457														

Legislative Assembly (Lower Chamber.)

	Population.														
Victoria	1,133,266	95	84	254,862	73	11	...	...	...	...	925	1046	11,774	13,315	3
N. S. Wales	1,121,857	141	74	305,456	35	20	10	9	...	...	2204	4199	7814	14,890	3
Queensland	422,776	72	60	84,530	48	12	...	...	...	...	9285	11,142	5760	6912	5
S. Australia	324,556	54	27	69,811	...	27	...	...	...	...	16,735	33,470	5936	11,872	3
W. Australia	46,290	30	30	5810	30	...	...	...	...	...	35,333	35,333	1543	1543	4
Tasmania	145,290	36	28	25,932	20	8	...	...	...	...	728	936	4035	5189	—
New Zealand	630,781	74	74	183,171	74	...	...	...	...	...	1411	1411	9011*	9011*	3
All	3,824,816	502	377	929,572	280	78	10	9	...	...	6297	8386	7601	10,145	

* Not including Maori Members.

GOVERNORS.

RETURN showing the Names of the Governors and Acting-Governors of the Colony of Tasmania, and the Dates of their Assumption of, and Retirement from, Office.

Name.	Office.	Date of Assumption of Office.	Date of Retirement from Office.
Colonel David Collins	Lieutenant-Governor of the Colony of Van Diemen's Land	19 Feb. 1804	24 Mar. 1810
Lieutenant Edward Lord Capt. Murray, 73rd Regt.	Commandants	24 Mar. 1810	Feb. 1812
Lieutenant-Colonel Geiles, 73rd Regt.	Commandant	Feb. 1812	4 Feb. 1813
Colonel Davey	Lieutenant-Governor	4 Feb. 1813	9 April, 1817
Colonel Sorell	Ditto	9 April, 1817	14 May, 1824
Colonel Arthur	Ditto	14 May, 1824	3 Dec. 1825
Lieutenant-General Sir R. Darling	Governor-in-Chief	3 Dec. 1825	6 Dec. 1825
Colonel Arthur	Lieutenant-Governor	6 Dec. 1825	30 Oct. 1836
Lieutenant-Colonel Snodgrass	Acting Lieutenant-Governor	31 Oct. 1836	5 Jan. 1837
Sir John Franklin, K.C.H.	Lieutenant-Governor	6 Jan. 1837	21 Aug. 1843
Sir J. E. Eardley-Wilmot, Bart.	Ditto	21 Aug. 1843	13 Oct. 1846
C. J. Latrobe, Esq.	Administrator of the Government	13 Oct. 1846	25 Jan. 1847
Sir W. T. Denison, Kt.	Lieutenant-Governor	26 Jan. 1847	8 Jan. 1855
Sir H. E. F. Young, Kt. C.B.	Governor-in-Chief	8 Jan. 1855	10 Dec. 1861
Colonel T. Gore Browne, C.B.	Administrator of the Government	11 Dec. 1861	16 June, 1862
	Governor-in-Chief	16 June, 1862	30 Dec. 1868
Lieutenant-Colonel W. C. Trevor, C.B.	Administrator of the Government	30 Dec. 1868	15 Jan. 1869
C. Du Cane, Esq.	Governor and Commander-in-Chief	15 Jan. 1869	28 Nov. 1874
Sir Valentine Fleming, Kt.	Administrator of the Government	26 Mar. 1874	June, 1874
Sir Francis Smith, Kt.	Ditto	30 Nov. 1874	13 Jan. 1875
F. A. Weld, Esq., C.M.G.	Governor and Commander-in-Chief	13 Jan. 1875	5 April, 1880
Sir Francis Smith, Kt.	Administrator of the Government	6 April, 1880	21 Oct. 1880
Sir J. H. Lefroy, K.C.M.G., C.B.	Ditto	21 Oct. 1880	6 Dec. 1881
Major Sir George Cumine Strahan, R.A., K.C.M.G.	Governor and Commander-in-Chief	7 Dec. 1881	28 Oct. 1886
Acting Chief Justice the Hon. W. L. Dobson	Administrator of the Government	21 April, 1884	19 May, 1884
Acting Chief Justice the Hon. W. R. Giblin	Ditto	29 Oct. 1886	18 Nov. 1886
Chief Justice Sir W. L. Dobson, Knight	Ditto	18 Nov. 1886	11 Mar. 1887
Sir R. G. C. Hamilton, K.C.B.	Governor and Commander-in-Chief	11 Mar. 1887	Still in office

MINISTRIES.

NAMES of the Members of the successive Ministries which have held Office in Tasmania since the inauguration of Responsible Government, together with the Dates of their Appointment and Retirement.

No.	Name of Minister.	Office.	Date of Appointment or of joining the Ministry.	Date of Retirement.
1	William Thomas Napier Champ	Colonial Secretary and Premier	1 Nov. 1856	26 Feb. 1857
	Thomas Daniel Chapman	Colonial Treasurer		
	Francis Smith	Attorney-General		
	John Warrington Rogers	Solicitor-General	15 Dec. 1856	26 Feb. 1857
	Henry Frampton Anstey	Secretary of Lands and Works	1 Nov. 1856	26 Feb. 1857
	William Edward Nairn	Seat in Ex. Council without office		
2	Thomas George Gregson	Colonial Secretary and Premier	26 Feb. 1857	25 April, 1857
	Charles Meredith	Colonial Treasurer		
	John Compton Gregson	Attorney-General		
	James Whyte	Seat in Ex. Council without office		
	Maxwell Miller	Ditto		
	John Helder Wedge	Ditto		
3	William Pritchard Weston	Premier without office	25 April, 1857	12 May, 1857
	William Henty	Colonial Secretary		
	Frederick Maitland Innes	Colonial Treasurer		
	Francis Smith	Attorney-General		
	Thomas John Knight	Solicitor-General		
	Robert Quayle Kermode	Seat in Ex. Council without office		
4	Francis Smith	Attorney-General and Premier	12 May, 1857	1 Nov. 1860
	William Henty	Colonial Secretary		
	Frederick Maitland Innes	Colonial Treasurer		
	Thomas John Knight	Solicitor-General		
	Robert Quayle Kermode	Seat in Ex. Council without office		
	Wm. Pritchard Weston	Ditto		
	John Walker	Ditto		
5	Wm. Pritchard Weston	Premier without office	1 Nov. 1860	22 July, 1861
	William Henty	Colonial Secretary	1 Nov. 1860	2 Aug. 1861
	Frederick Maitland Innes	Colonial Treasurer		
	Thomas John Knight	Attorney-General	2 Nov. 1860	4 Feb. 1861
	succeeded by			
	William Lambert Dobson	Ditto	5 Feb. 1861	2 Aug. 1861
	William Archer	Seat in Ex. Council without office	2 Nov. 1860	

No.	Name of Minister.	Office.	Date of Appointment or of joining the Ministry.	Date of Retirement.
6	Thomas Daniel Chapman	Premier without office	2 Aug. 1861	1 Nov. 1862
	William Henty	Colonial Secretary		
	succeeded by			
	Frederick Maitland Innes	Ditto	1 Nov. 1862	20 Jan. 1863
	Frederick Maitland Innes	Colonial Treasurer	2 Aug. 1861	1 Nov. 1862
	succeeded by			
	Thomas Daniel Chapman	Ditto & Premier	1 Nov. 1862	20 Jan. 1863
	William Lambert Dobson	Attorney-General	2 Aug. 1861	
7	James Whyte	Colonial Secretary and Premier	20 Jan. 1863	24 Nov. 1866
	Charles Meredith	Colonial Treasurer		
	Robert Byron Miller	Attorney-General		
	James Milne Wilson	Seat in Ex. Council without office		
8	Sir Richard Dry	Colonial Secretary and Premier	24 Nov. 1866	1 Aug. 1869
	Thomas Daniel Chapman	Colonial Treasurer	24 Nov. 1866	4 Aug. 1869
	William Lambert Dobson	Attorney-General		
9	James Milne Wilson	Colonial Secretary and Premier	4 Aug. 1869	4 Nov. 1872
	Thomas Daniel Chapman	Colonial Treasurer		
	William Lambert Dobson	Attorney-General	4 Aug. 1869	5 Feb. 1870
	succeeded by			
	William Robert Giblin	Ditto	5 Feb. 1870	4 Nov. 1872
	Henry Butler	Seat in Ex. Council without office	5 Aug. 1869	26 Oct. 1869
	Henry Butler	Minister of Lands and Works	27 Oct. 1869	4 Nov. 1872
	James Alfred Dunn	Seat in Ex. Council without office	5 Aug. 1869	
10	Frederick Maitland Innes	Colonial Treasurer and Premier	4 Nov. 1872	4 Aug. 1873
	James Reid Scott	Colonial Secretary		
	John Alexander Jackson	Attorney-General		
	Charles Meredith	Minister of Lands and Works		
11	Alfred Kennerley	Premier without office	4 Aug. 1873	20 July, 1876
	Thomas Daniel Chapman	Colonial Secretary	4 Aug. 1873	1 April, 1876
	succeeded by			
	George Gilmore	Ditto	10 April, 1876	20 July, 1876
	Philip Oakley Fysh	Colonial Treasurer	4 Aug. 1873	13 Mar. 1875
	succeeded by			
	Frederick Maitland Innes	Ditto	13 Mar. 1875	20 July, 1876
	William Robert Giblin	Attorney-General	4 Aug. 1873	
	William Moore	Minister of Lands and Works	4 Aug. 1873	

No.	Name of Minister.	Office.	Date of Appointment or of joining the Ministry.	Date of Retirement.
12	Thomas Reibey	Colonial Secretary and Premier	20 July, 1876	9 Aug. 1877
	Charles Meredith	Colonial Treasurer	20 July, 1876	9 Aug. 1877
		Minister of Lands and Works	21 July, 1876	21 Aug. 1876
	Charles Hamilton Bromby	Attorney-General	20 July, 1876	9 Aug. 1877
	Christopher O'Reilly	Minister of Lands and Works	21 Aug. 1876	9 Aug. 1877
	William Lodewyk Crowther	Seat in Ex. Council without office	20 July, 1876	9 Aug. 1877
13	Philip Oakley Fysh*	Premier without office	9 Aug. 1877	5 Mar. 1878
	William Robert Giblin	Attorney-General	9 Aug. 1877	13 Aug. 1877
		Colonial Treasurer	13 Aug. 1877	20 Dec. 1878
	William Moore	Minister of Lands and Works	9 Aug. 1877	13 Aug. 1877
		Colonial Secretary	13 Aug. 1877	20 Dec. 1878
	Alfred Dobson	Attorney-General	13 Aug. 1877	20 Dec. 1878
	Nicholas John Brown	Minister of Lands and Works	13 Aug. 1877	20 Dec. 1878
	James Wilson Agnew	Seat in Ex. Council without office	9 Aug. 1877	20 Dec. 1878
14	Wm. Lodewyk Crowther	Premier without office	20 Dec. 1878	29 Oct. 1879
	Thomas Reibey	Colonial Secretary	20 Dec. 1878	29 Oct. 1879
	David Lewis	Colonial Treasurer	20 Dec. 1878	29 Oct. 1879
	John Stokell Dodds	Attorney-General	20 Dec. 1878	29 Oct. 1879
	Christopher O'Reilly	Minister of Lands and Works	20 Dec. 1878	29 Oct. 1879
15	William Robert Giblin	Colonial Treasurer and Premier	30 Oct. 1879	1 Dec. 1881
		Attorney-General and Premier	1 Dec. 1881	15 Aug. 1884
	William Moore	Chief Secretary	30 Oct. 1879	15 Aug. 1884
	John Stokell Dodds	Attorney-General	30 Oct. 1879	15 Aug. 1884
		Treasurer	1 Dec. 1881	15 Aug. 1884
	Christopher O'Reilly	Minister of Lands and Works	30 Oct. 1879	1 Dec. 1882
	succeeded by			
	Nicholas John Brown	Ditto	1 Dec. 1882	15 Aug. 1884
	James Wilson Agnew	Seat in Ex. Council without office	30 Oct. 1879	5 Feb. 1881
	Thomas Christie Smart	Ditto	1 Dec. 1882	15 Aug. 1884
16	Adye Douglas	Chief Secretary and Premier	15 Aug. 1884	8 Mar. 1886
	succeeded by			
	James Wilson Agnew	Ditto	8 Mar. 1886	1 Mar. 1887
	Ditto	Premier only	1 Mar. 1887	29 Mar. 1887
	Henry Isidore Joachim Raphael Rooke	Chief Secretary	1 Mar. 1887	29 Mar. 1887
	William Henry Burgess	Treasurer	8 Mar. 1886	29 Mar. 1887
	John Stokell Dodds	Attorney-General	8 Mar. 1886	15 Feb. 1887
	succeeded by			
	Richard James Lucas	Ditto	25 Feb. 1887	30 Mar. 1887
	Nicholas John Brown	Minister of Lands and Works	8 Mar. 1886	30 Mar. 1887

* On Mr. Fysh's retirement from the position of Premier, in March, 1878, he was succeeded by Mr. Giblin, without any further change in the constitution of the Ministry. The same remark, *mutatis mutandis*, applies to Mr. Douglas (16).

No.	Name of Minister.	Office.	Date of Appointment or of joining the Ministry.	Date of Retirement.
17	Philip Oakley Fysh	Chief Secretary and Premier	30 Mar. 1887	Still in office
	Bolton Stafford Bird	Treasurer		
	Andrew Inglis Clark	Attorney-General		
	Edward Nicholas Coventry Braddon	Minister of Lands and Works		
	succeeded by			
	Alfred Thomas Pillinger	Ditto	29 Oct. 1888	
	George Parker Fitzgerald	Seat in Ex. Council without office		

PARLIAMENTS.

RETURN showing the Number of Parliaments in the Colony of Tasmania since the inauguration of Responsible Government; also the Number of Sessions, and the Dates of Opening and Closing the same.

Number of Parliament.	Number of Session.	Date of Opening.	Day of Closing or Dissolution.	Duration of Parliament in days.
I.	1	2 December, 1856	5 June, 1857	
	2	13 October, 1857	25 February, 1858	
	3	7 September, 1858	5 November, 1858	
	4	9 December, 1858	10 December, 1858	
	5	4 August, 1859	23 September, 1859	
	6	18 July, 1860	4 October, 1860 Dissolved 8 May, 1861.	1861
II.	1	15 August, 1861	1 February, 1862	
	2	22 July, 1862	20 October, 1862 Dissolved 21 October, 1862.	433
III.	1	15 January, 1863	25 March, 1863	
	2	16 June, 1863	29 September, 1863	
	3	13 October, 1863	17 October, 1863	
	4	29 June, 1864	21 September, 1864	
	5	18 July, 1865	29 September, 1865	
	6	31 July, 1866	10 September, 1866 Dissolved 18 September, 1866.	1342
IV.	1	20 November, 1866	20 February, 1867	
	2	20 August, 1867	11 October, 1867	
	3	28 July, 1868	17 September, 1868	
	4	24 August, 1869	22 October, 1869	
	5	23 August, 1870	18 October, 1870 Dissolved 7 August, 1871.	1721
V.	1	7 November, 1871	21 December, 1871	
	2	25 June, 1872	19 August, 1872 Dissolved 20 August, 1872.	287
VI.	1	22 October, 1872	27 December, 1872	
	2	17 June, 1873	31 October, 1873	
	3	21 July, 1874	18 September, 1874	
	4	27 July, 1875	30 September, 1875	
	5	26 October, 1875	3 November, 1875	
	6	12 September, 1876	20 November, 1876	
	7	18 January, 1877	27 January, 1877	
	8	24 April, 1877	17 May, 1877 Dissolved 19 May, 1877.	1670

Number of Parliament.	Number of Session.	Date of Opening.	Day of Closing or Dissolution.	Duration of Parliament in days.
VII.	1	12 July, 1877	9 August, 1877	
	2	25 September, 1877	11 December, 1877	
	3	16 July, 1878	19 June, 1879	
	4	9 September, 1879	11 March, 1880	
	5	10 August, 1880	1 November, 1880	
	6	19 July, 1881	8 November, 1881 Dissolved 5 May, 1882.	1758
VIII.	1	11 July, 1882	6 November, 1882	
	2	24 July, 1883	29 October, 1883	
	3	14 December, 1883	20 December, 1883	
	4	1 July, 1884	24 November, 1884	
	5	21 July, 1885	5 December, 1885 Dissolved 28 June, 1886.	1448
IX.	1	24 August, 1886	8 December, 1886	
	2	7 July, 1887	20 December, 1887	
	3	29 May, 1888	4 February, 1889	
	4	9 July, 1889	11 December, 1889	
	5	1 July, 1890	28 November, 1890	

EXECUTIVE COUNCIL.

RETURN of Members of the Executive Council of Tasmania on 31 December, 1890.

Name.	Date of subscribing the Oath.	Holding what Office (if any).
Champ, William Thomas Napier	1 Nov. 1856	
Smith, Francis		
Dobson, William Lambert	6 June, 1861	Chief Justice.
Miller, Robert Byron	20 Jan. 1863	
Kennerley, Alfred	4 Aug. 1873	
Fysh, Philip Oakley		Chief Secretary and Premier.
Moore, William		
Reibey, Thomas	20 July, 1876	Speaker House of Assembly.
O'Reilly, Christopher	21 Aug. 1876	Commissioner of Mines.
Agnew, James Wilson	9 Aug. 1877	
Brown, Nicholas John	11 Aug. 1877	
Dobson, Alfred	13 Aug. 1877	Solicitor-General.
Dodds, John Stokell	20 Dec. 1878	Puisne Judge.
Smart, Thomas Christie	1 Dec. 1882	
Douglas, Adye	15 Aug. 1884	
Burgess, William Henry		
Lucas, Richard James	28 Feb. 1887	
Rooke, Henry Isidore Joachim Raphael	1 Mar. 1887	
Braddon, Edward Nicholas Coventry	29 Mar. 1887	Agent-General.
Bird, Bolton Stafford		Treasurer.
Clark, Andrew Inglis		Attorney-General.
Pillinger, Alfred Thomas	29 Oct. 1888	Minister of Lands and Works
Fitzgerald, George Parker	Ditto	

LEGISLATIVE COUNCIL.

RETURN of Members of the Legislative Council of Tasmania on 31 December, 1890.

Name of Member.	Name of Electoral District.	Date of Election.	Holding what Office (if any).
Coote, Audley	Tamar	7 May, 1889	
Crosby, William	Hobart	9 May, 1887	
Dodery, William	Westmorland	7 May, 1889	Chairman of Committees.
Douglas, Adye	Launceston	17 June, 1890	
Fysh, Philip Oakley	Buckingham	7 April, 1887	Chief Secretary & Premier.
Gellibrand, Walter Angus Bethune	Derwent	7 May, 1889	
Gibson, James	South Esk	26 Mar. 1886	
Grubb, Frederick William	Meander	3 May, 1887	
Hart, William	Launceston	8 May, 1888	
Hodgson, William	Pembroke	3 May, 1887	
Lord, John	Cambridge	8 July, 1885	
M'Call, John Hair	Mersey	8 May, 1888	
M'Gregor, Alexander	Hobart	5 May, 1887	
Moore, William	Russell	20 Nov. 1885	President of the Council.
Page, Alfred	Macquarie	26 July, 1887	
Rooke, Henry Isidore Joachim Raphael	North Esk	10 Mar. 1887	
Salier, George	Hobart	3 July, 1887	
Watchorn, John	Huon	8 May, 1888	

HOUSE OF ASSEMBLY.

RETURN of Members of the House of Assembly on 31 December, 1890.

Name of Member.	Electoral District.	Date of Election.	Holding what Office (if any).
Barrett, Peter	North Launceston	26 July, 1886	
Belbin, William	South Hobart	26 July, 1886	
Bird, Bolton Stafford	Franklin	13 April, 1887	Treasurer.
Brown, Nicholas John	Cumberland	17 July, 1886	
Bennett, William Henry	Campbell Town	30 April, 1889	
Burgess, William Henry	West Hobart	26 July, 1886	
Clark, Andrew Inglis	South Hobart	7 April, 1887	Attorney-General.
Conway, Harry	George Town	17 July, 1886	
Crisp, Alfred	North Hobart	30 April, 1886	
Crowther, Edward Lodewyk	Kingborough	26 July, 1886	
Davies, John George	Fingal	17 July, 1886	
Dooley, James Monaghan	East Devon	26 July, 1886	
Dumaresq, Henry	Longford	17 July, 1886	
Falkiner, John William	Evandale	17 July, 1886	
Featherstone, Charles Edwin	Sorell	11 Feb. 1889	
Fenton, Charles Benjamin Monds	Wellington	26 July, 1886	
Fitzgerald, George Parker	West Hobart	26 July, 1886	
Gill, Henry Horatio	Kingborough	15 Mar. 1887	
Hamilton, John	Glenorchy	18 June, 1887	
Hart, John	Deloraine	26 July, 1886	
Hartnoll, William	South Launceston	26 July, 1886	
Hawkes, Samuel *	Ringarooma	26 July, 1886	
Lette, Henry Elms	North Launceston	26 July, 1886	Chairman of Committees.
Lewis, Neil Elliott	Richmond	26 July, 1886	
Lyne, John	Glamorgan	26 July, 1886	
Mackenzie, Charles John	Wellington	26 July, 1886	
M'Call, John	West Devon	30 Oct. 1888	
Mugliston, Henry Boyes	Brighton	26 July, 1886	
Pillinger, Alfred Thomas	Oatlands	8 Nov. 1888	Minister of Lands and Works.
Reibey, Thomas	Westbury	17 July, 1886	Speaker of the House.
Scott, David	South Launceston	26 July, 1886	
Sidebottom, William	Selby	17 July, 1886	
St. Hill, Windle Hill	North Hobart	17 July, 1886	
Sutton, Edmund Henry	Cressy	26 July, 1886	
Young, Arthur	East Devon	26 July, 1886	

* Vacant. Member died, 19th December, 1890.

CHAPTER IV.

Crown Lands.

Administration.

All business connected with the sale, leasing, or disposal of Crown Lands is administered by the Minister of Lands and Works, who presides over the four branches of Lands, Surveys, Works, and Mines. Of these four divisions the Public Works branch deals with the expenditure of all moneys voted by Parliament for the construction of Public Works, or arising from the Road Fund provided for under the 113th Section of the Crown Lands Act; these works are carried out under the direction of the Engineer-in-Chief. The Mines Office, under the control of the Secretary of Mines, deals with all matters connected with the leasing of Crown Lands for mining purposes. The Lands Branch is under the supervision of the Deputy Commissioner of Crown Lands, and matters relating to the Survey Branch are entrusted to the care of the Deputy Surveyor-General.

To facilitate the dispatch of business, the Heads of the various Departments pay periodical visits to Launceston and other important centres.

Part I.

LANDS AND SURVEYS.

(By E. A. Counsel, *Esq., Deputy Surveyor-General).*

The business of the Lands and Survey branches is transacted by virtue of the Crown Lands Act, 1890, (54 Vict. No. 8). This Act is a consolidation of the twelve Acts previously in operation.

For the convenience of survey operations, the Colony has been divided into thirteen Survey Districts. The names and addresses of the District Surveyors are as follows :—

Name.	Address.	District.
F. E. Windsor	Wynyard	Wellington and parts of Russell, Devon.
R. Hall	Leith	Devon, (part).
J. A. Sorell	Launceston	Devon, Westmorland (parts).
H. J. Chalmers	Latrobe	Devon, Westmorland, Cumberland, Lincoln, (parts).
G. T. Eddie	Invermay	Dorset, Cornwall, Somerset, Westmorland, (parts).
E. G. Walpole	Moorina	Dorset (part).
G. C. Smith	Fingal	Dorset and Cornwall, Glamorgan, Somerset, (parts).
W. M. Hardy	Hobart	Glamorgan, Pembroke, Monmouth, Somerset, (parts).
T. Frodsham	Hobart	Buckingham, Cumberland, Monmouth, Franklin, (parts), Lincoln, Arthur.
H. Combes	Longley	Buckingham, (part of).
E. G. Innes	Esperance	Buckingham and Kent, (parts).
D. Jones	Waratah	Montagu and parts of Russell, Franklin, and Lincoln.

The District Surveyors will always be prepared to give information to intending selectors without charge, unless the selector should wish the Surveyor to personally visit the land before an application is made.

Digest of the Land Laws.

Lands of the Crown are defined to be any land in the Colony which are or may become vested in the Crown, and have not been and are not dedicated to some public use.

The Governor in Council, if he thinks fit, may, by Proclamation, withhold or withdraw from selection, sale, or leasing any lands of the Crown.

The Governor in Council may make, alter, or amend Regulations under the Crown Lands Act, such Regulations to be published in the *Gazette*.

The Minister of Lands for the time being is the Commissioner for the disposal of Lands of the Crown, and has the power of making all contracts, leases, or licences, and in such capacity may sue or be sued.

The Governor in Council may appoint one or more Deputy Commissioner or Commissioners of Crown Lands.

The Governor in Council may from time to time appoint a Conservator of Forests, who shall, subject to the control of the Commissioner, have the management of all land reserved for the preservation and growth of timber, and also of such other portions of Crown Land as may be assigned to his care.

Classification of Lands.

Lands are divided into two classes :—

I. Town Lands, comprising all Lands situate within the cities of Hobart and Launceston, and all Lands within a distance of five miles from the nearest point of any part of the boundaries of either Hobart or Launceston, and all Lands situate within the limits of any town now or hereafter proclaimed or reserved for such purpose by the Governor in Council:

II. Rural Lands, comprising all Lands not classed as Town Lands.

The Commissioner may decline to enter into a contract or to refuse any application for the sale and purchase of any Crown Land in any case in which the Land selected or applied for is known to the Commissioner to be auriferous or to contain Minerals.

The Governor in Council may, by Proclamation in the *Gazette*, except from sale and reserve to Her Majesty such land as he sees fit for the preservation and growth of Timber.

The Governor in Council may, by Proclamation in the *Gazette*, declare that no person, although he be duly licensed or otherwise authorised, shall cut or remove live timber or any particular description of timber or bark from such portions of Crown Lands as are named in such Proclamation.

Reserves for Public Purposes.

The Governor in Council may, by Proclamation in the *Gazette*, except from sale and reserve to Her Majesty such lands as may be required for—

I. Public Roads or other internal communications whether by land or water:

II. Military or Defence purposes:

III. Sites for the erection of Public Libraries, Museums, Literary or Scientific Institutions, Hospitals or Almshouses for aged or infirm poor, or places for the interment of the dead:

IV. Sites of Public Quays, Breakwaters, or Landing-places on the sea-coasts or shores of navigable streams:

V. Sites for Trigonometrical Stations or for other purposes connected with the Survey of *Tasmania:*

VI. Places for the recreation and amusement of the inhabitants of any city, town, or village:

VII. The construction of Irrigation Works or of Dams, Reservoirs, Aqueducts, Watercourses, or other works for the supply of water to any city, town, or district:

VIII. Any other purpose of public safety, convenience, health, or enjoyment.

The Governor in Council may, by notice in the *Gazette*, exempt from sale and reserve as a school allotment any portion of the lands of the Crown wherever situate not exceeding five acres in extent, and thereupon the same shall become vested for the purposes of The Education Act, 1885."

It shall not be lawful for the Governor or the Governor in Council to except from sale and reserve to Her Majesty, or to dispose of under this Act, any Crown Lands as sites of places of public worship or for any other religious purposes.

Nothing contained in the foregoing shall be held to apply to any Lands which have, before the seventeenth day of September, 1868, been reserved for sites of places of public worship of any religious denomination.

In every Town that may hereafter be surveyed and subdivided for sale, before any lots are put up for auction the Commissioner shall set apart any area not exceeding Twenty acres of Land for recreation purposes, in one or more blocks, and such other blocks for such other public purposes as he may deem necessary in accordance with the provisions in Section Twenty-four of this Act.

When any land has been reserved for streets, roads, &c., and not used by the public, or no longer required, the Governor in Council may revoke such reservations, and may sell such land.

Selection of Land.

The following persons shall not be eligible to select or hold Land under Part I. of this Act :—

I. Any person who is the selector of Three hundred and twenty acres of Land, in one or more lots, on credit under this Act, and for which the whole of the purchase money has not been paid :

II. Any person who is the selector of Three hundred and twenty acres of Land, in one or more lots, on credit under the provisions of any previous Act regulating the sale and disposition of Crown Lands, and for which the whole of the purchase money has not been paid :

Any person of the age of Eighteen years and upwards, not disqualified under the preceding Section, may select and purchase under this Act, by private contract, at the price and upon the terms set forth hereunder one Lot of Rural Land not exceeding Three hundred and twenty acres nor less than Fifteen acres.

	£	s.	d.
100 acres at 20*s.*	100	0	0
Add ⅓ for credit	33	6	8
	£133	6	8

	£	s.	d.	
Cash at time of purchase	3	6	8	
First year	5	0	0	
Second year	5	0	0	
Third year	10	0	0	
Fourth year	10	0	0	
Fifth year	10	0	0	
Sixth year	10	0	0	
Seventh year	10	0	0	
Eighth year	10	0	0	
Ninth year	10	0	0	
Tenth year	10	0	0	
Eleventh year	10	0	0	
Twelfth year	10	0	0	
Thirteenth year	10	0	0	
Fourteenth year	10	0	0	
				£133 6 8

and so in proportion for any greater or smaller area than one hundred acres : but credit will not be given for any sum less than £15.

Any person wishing to purchase Waste Lands must make application upon a printed form, to be obtained from the Lands Offices, at Hobart and Launceston, at the various post offices and police offices, or from any District Surveyor.

The applicant must state the area required, describe its position as accurately as possible with reference to some fixed point, and forward the application to the Commissioner of Crown Lands, with the fee of one shilling.

The form having been filled up and forwarded to the Lands Office, Hobart, if it appears from the description given that the land is available for selection, the applicant will be called upon to pay the survey fee in accordance with the subjoined scale; failing to deposit the survey fee within thirty days after the date of demand the application will be cancelled. The acceptance of Survey Fee will not be considered to confer upon the Selector any estate in the land, or any right or title thereto.

CROWN LANDS ACT, 1890.

Survey Scale—	£	*s.*	*d.*
25 acres and under	4	0	0
Above 25 acres and not exceeding 50 acres	6	5	0
„ 50 „ „ 100 „	11	0	0
„ 100 „ „ 150 „	12	10	0
„ 150 „ „ 200 „	14	0	0
„ 200 „ „ 250 „	15	10	0
„ 250 „ „ 320 „	17	5	0
For Surveys of Town Sites, Reserves, &c., of a greater area than 320 acres, the following fees shall be chargeable :—			
Above 320 acres and not exceeding 640 acres	20	0	0
„ 640 „ „ 1000 „	25	0	0
„ 1000 „ „ 1500 „	29	10	0
„ 1500 „ „ 2000 „	34	10	0
„ 2000 „ „ 2560 „	40	10	0
„ 2560 „ „ 3200 „	47	0	0
„ 3200 acres, at the rate of £12 10*s.* per 1000 acres.			
Single Town allotment	1	11	0
„ Suburban ditto	3	2	6
Town Section of fewer than 5 allotments	7	16	3
„ of fewer than 5 allotments, per lot	1	11	0
For Town Sections containing more than 5 allotments the Surveyor-General shall decide the amount of additional fees to be paid.			
Road Surveys per mile, for first mile	7	0	0
„ for every additional chain above one mile	0	1	6
Connecting Survey per mile, for first mile	6	5	0
„ for every additional chain above one mile	0	1	3
Determination of true North (by instructions)	1	1	0
For special services a Surveyor will be remunerated at the rate of £3 3*s.* per diem with party, or £2 2*s.* per diem without party.			

Upon payment of the survey fee, a Surveyor will be instructed to mark off the land applied for. Should the Surveyor discover that more than one person has applied for the same land, the application first received at the Lands Office will have priority.

Should two or more applications for the same land be received simultaneously, the lots will be disposed of by tender from the applicants.

After the Surveyor's plan has been received, examined, and approved of, the applicant will be called upon to pay the first deposit, and thereupon the Commissioner and the applicant will mutually enter into a contract for the

sale and purchase of the land at the price, on the terms, subject to the conditions of the Act.

Selections as a general rule are laid off in rectangular blocks the lines bearing to the Cardinal Points of the compass: but lots fronting on a Road, River, Lake, or the Sea have their width regulated as not to exceed the proportions of one to two, the first figure representing the width.

Every person who has selected may make a further selection, provided that the total area held by him by virtue of such selections does not exceed Three hundred and twenty acres, nor consist of more than Three Lots, and, if such Lots adjoin the total frontage on any road or stream, shall not exceed the maximum frontage that would be allowed if the selections had been made in one Lot.

Additional selections shall be subject to all conditions of original selections.

No person shall become the purchaser of any Crown Land under this Part of this Act who is, in respect of the Land which he applies to purchase, or any part thereof, a servant of or an agent or trustee for any other person, or who at the time of his application has entered into any agreement express or implied to permit any other person to acquire by purchase or otherwise any such land or part thereof; and all contracts, agreements, and securities made and entered into shall be illegal and void, and the land, with all improvements thereon, shall be absolutely forfeited to the Crown. Any person who shall enter into any such contract or agreement shall be guilty of a Misdemeanour, and on conviction thereof be liable to be fined in any sum not exceeding One hundred Pounds, or to be imprisoned for any term not exceeding Two years.

Every applicant between the ages of eighteen and twenty-one years shall state in his application that he is of the full age of eighteen years.

Every purchaser of Crown Lands between the ages of eighteen and twenty-one years who shall enter into any agreement for the performance of any work or rendering of any services on such purchase, &c., shall be subject to the same liabilities and have the same rights in respect of such agreement as if he were of the full age of twenty-one years.

Roads.

So soon as five hundred acres of Crown Lands are selected for purchase under Part II. or III. of the Crown Lands Act, in not less than five lots, adjoining or within a short distance of one another, the Governor in Council authorises the expenditure, upon the construction of roads in the vicinity, of a sum equal to Ten Shillings for each acre so selected and settled upon.

One-fourth of the proceeds of the sale, lease, &c., of Waste lands, not including lands sold as above, is set apart to form a fund for the construction of certain Public Works, and out of this fund assistance is given to Road Trusts under certain conditions, and the residue of the fund is applied to the construction of roads and bridges generally.

Large sums are also voted annually by Parliament to be expended upon roads and Public Works generally.

Sale by Auction.

All Rural Lands not held by any selector, and not excepted from sale under this Act, may be sold by public auction. All Town Lands are sold by public auction, and not otherwise, except as hereinafter provided.

The lowest upset price of Crown Land offered for sale by auction is fixed at One Pound per acre. Lands to be offered by auction shall, before sale, be

surveyed and delineated in the public charts of the Colony. Lots of Agricultural Land must not exceed three hundred and twenty acres each.

Sales by Private Contract.

If after a sale by auction any lots remain unsold, the Commissioner, within twenty-one days, causes a list of such lots to be prepared, and a notice published in the *Gazette* to the effect that, fourteen days after the date of notice, the lands included in such list may be sold by private contract, at the upset prices therein specified; and such land will be sold to the first applicant; but if more than one application be received for the same lot at the same time, the lot must again be put up for auction.

Applications to purchase lands under this section must be made within one year after the lands were last put up for sale by auction, and before the publication of any subsequent notice of sale thereof by auction.

The terms of payment for lands sold by private contract are exactly the same as the terms of payment for lands sold by auction.

No lands within five miles of Hobart or Launceston may be sold by private contract.

Mining Areas.

Mining Areas may be declared by the Governor in Council on any Gold Field or lands reserved under the Mineral Lands Act.

Crown Lands in Mining Areas may be selected or sold by auction. If within one mile from any Town Reserve, lots must not be less than one acre or greater than ten acres. If at a greater distance than one mile from the nearest boundary of any Town Reserve, such lots must not be less than ten or greater than one hundred acres each.

The sale by auction is arranged in the same manner as the other auction sales already described.

The upset price of such lands is fixed at not less than One Pound per acre, payable in fourteen years in like proportion to the scale set forth on page 60.

Any lands selected or bought at auction within any Mining Area must be occupied by the purchaser thereof or by some member of his family, by habitually residing thereon for at least five years, before a grant shall be issued for such land, and in default of the land being so occupied, it shall be liable to be forfeited to the Crown. Such term of five years shall commence one year after the date of purchase.

Lands selected or bought at auction within any Mining Area shall be open to any person to search or mine for gold or any mineral thereon.

Any person desirous of searching or mining on such land must apply in writing to a Commissioner of Mines, and the Commissioner will thereupon give notice to the occupant or owner of the land, and will arrange with him for the appointment of a person to act with the Commissioner in assessing compensation to be made for damages sustained. In estimating such damages no account may be taken of the value of the gold or minerals the land may be supposed to contain.

If mining operations are discontinued on the land, the owner may resume possession of the portion which may have been occupied for mining.

All Regulations made under any Act relating to mining for gold, &c., and at the time in operation, shall, so far as consistent wtth such Regulations, be applicable to and for the purposes of this Act.

Where the Commissioner has reason to believe that any Crown Land selected under this Act is auriferous or contains minerals, such land may be sold subject to the conditions relating to lands within Mining Areas.

Any person who has occupied land in a mining town under a Business Licence, Miner's Right, or Residence Licence, and who has erected thereon improvements to the value of Fifty Pounds, may purchase one quarter of an acre under the Residence Areas Act, 1891, (55 Vict. No. 30); the upset price for such area shall not be less than Ten Pounds nor more than Fifty Pounds, exclusive of the value of improvements and cost of survey and of the grant deed. The grant deed of any land purchased under the Residence Areas Act shall contain a reservation to the Crown or to any Crown lessee of the right to mine for gold or other metals or minerals under such land at a depth of not less than twenty feet from the natural surface thereof.

Conditions of Purchase.

Not less than one month before the sale of any lands by auction, lists of all lands to be submitted for competition are published in the *Gazette* and the newspapers, the upset prices as fixed by the Governor in Council being mentioned, and lithographed plans of the various lots circulated throughout the Colony. Sales are held in Hobart, Launceston, Latrobe, Emu Bay, and such other places as the Minister may appoint.

Lots may be purchased at auction for cash, or for credit, provided the price exceeds Fifteen Pounds. If the purchaser elects to pay cash he is required to pay in ready money at the time of sale a deposit of one-fifth of the price, and the residue within one month next after the time of sale, and unless he pays the residue within the time allowed the sale becomes void and the deposit is forfeited.

If the purchaser wishes to obtain credit, a sum equal to one-third of the price is added by way of premium for the allowance of credit, and the amount of the price and premium is called "purchase money;" of this sum the purchaser pays one-eighth at the time of sale, and the residue of the purchase money is payable in fourteen annual instalments, the first instalment being due one year after the date of sale.

Discount allowed for Prepayment of Instalments.

A purchaser on credit may pay off the balance unpaid under the contract, and is allowed a deduction equivalent to the amount of interest added to the unpaid instalment by way of credit premium. Provided that such purchaser has made substantial improvements upon the land to the value of twenty shillings per acre of the land selected.

The Purchaser of Land on Credit to make substantial Improvements thereon.

The purchaser of any land upon credit shall begin to effect improvements thereon at the expiration of one year from the date of contract, and shall continue in each year during the eight consecutive years thereafter to expend not less than two shillings and sixpence per acre of the land purchased; and in default of making such expenditure, the land shall be forfeited to the Crown. But any purchaser having expended more than two and sixpence per acre in any one year, shall be entitled to credit against his liability for any subsequent year.

The total amount to be expended in improvements need not exceed one pound per acre.

Postponed Instalments to bear Interest.

The balance of the purchase money due upon any Crown land purchased on credit prior to the date of this Act may be paid off subject to the terms and conditions of the Act under which such land was purchased.

The Governor in Council may postpone the payment of any instalment on land purchased under this Act for any period not exceeding two years. But any such postponed instalment shall bear interest at the rate of five pounds per centum for each year so postponed.

Whenever any land purchased under this Act has become liable to forfeiture on account of failure to make the necessary improvements thereon, the Governor in Council may postpone the time for effecting such improvements for any term not exceeding two years.

Default in Payment of Purchase Money.

In all cases where land has been sold on credit, if default is made in the payment of any instalment, and the same is not paid within sixty days after it has become payable, the Commissioner may cause a list of defaulters to be prepared and published in the *Gazette* and newspapers, with a notice stating that the lands included therein will be put up for sale by auction, and specifying in such notice the day, time, and place at which such auction shall be held.

No land shall be declared forfeited to the Crown under the preceding paragraph until thirty days' notice of the intention of the Commissioner has been given by advertisement in the *Gazette*, and also in one Hobart and one Launceston newspaper, and also to the purchaser thereof.

A defaulter may save his land from sale if before the day fixed for auction he pays the overdue instalment and a fine of one penny for every acre of land in respect of which default has been made, and five shillings to cover the cost of advertising, within one month from the date of first notice.

In all cases where land has been sold upon credit under this or any other Act, whether by auction or private contract, if default in payment of any instalment of the purchase money is made, and the same is not paid within sixty days after it has become due, the Governor in Council may, on the application of the Commissioner, declare such land to be forfeited, with the deposit and all instalments paid in respect to it, and the land shall revert to the Crown, subject to the provisions hereinafter mentioned.

In case such land reverts to the Crown, the same shall be put up for sale by auction at such time and place as the Commissioner shall direct, at an upset price of not less than one pound per acre, to be paid in cash at the time of sale; or, if the purchaser at the time of sale declares that he is desirous of being allowed credit, he shall be so allowed on the terms mentioned in this Act. If the land so sold realises more than the upset price, the Governor in Council shall, on application, authorise the repayment to the person having made default of any portion of the purchase money not exceeding the amount of deposit and instalments paid by such person.

The Governor in Council may postpone the sale of any lands on which payment is overdue if the defaulter addresses him by petition stating such facts as may be considered sufficient to induce the Governor to stay the sale.

Land not alienable until paid for.

No purchaser on credit shall be allowed to transfer his interest in the land without the written consent of the Commissioner.

On the consent of the Commissioner being obtained a transfer fee of threepence in the Pound on the purchase money is required.

All arrears of instalments must be paid before the Commissioner's consent to transfer can be given.

If a purchaser on credit becomes bankrupt his interest passes to his trustee. A purchaser on credit may devise his interest, and if he dies intestate

his interest becomes part of his personal estate and passes to his representative, who holds the land upon the same terms as the intestate.

Lands are conveyed by grant deed, for which a fee of fifteen shillings is charged. The whole of the purchase money must first be paid. Grants are issued in duplicate, and are enrolled and delivered to the Recorder of Titles, who registers and deals with them in the manner provided for by the Real Property Act.

All lands alienated under the Crown Lands Act or any previous Act for five years after the date of alienation are liable to be resumed for mining purposes on payment of compensation for the value, other than that of gold or other minerals, of the lands and improvements so resumed.

When the purchase money in full has been paid, together with the grant deed fee, if the purchaser wishes the deeds to be made out in any name other than the party to the contract, he must make a written request to the Commissioner, informing him of the names of the persons in whose favour the deeds are to be made out, the signatures of such request to be witnessed by a Justice of the Peace. In such cases a fee of threepence in the Pound on the purchase money will be charged for transfer.

When grant deeds are issued from the Lands Office the purchaser is notified of the fact, and the Lands Office is then no longer responsible ; the deeds after enrolment are forwarded to the Recorder of Titles, who notifies to the purchaser the fees payable under the Real Property Act, and issues the deeds from his Office, or from the Branch Office, Launceston.

Every grant deed of any Crown Land within the boundaries of any Town on any proclaimed Gold Field or Lands withdrawn from sale under this Act shall contain a reservation to the Crown of the right to mine for Minerals under such land at a depth of fifty feet from the service. Such reservation shall apply to Crown Lands which have been purchased before the passing of this Act but for which no grant deed has been issued.

Leases to occupy for Grazing purposes.

Unoccupied country may, if the Commissioner sees fit, be exposed to auction in runs of such extent as the Commissioner may direct. Such runs are liable at any time to be sold or licensed, or occupied by virtue of a miner's right or licence, for other than pastoral purposes, and to be otherwise alienated and dealt with.

The rent is fixed by the Commissioner, and the run is put up for auction, the highest bidder receiving a lease to occupy the same for fourteen years.

The interest in a run may be transferred by consent of the Commissioner on payment of the fee of one shilling in the £ on the annual rental.

The lease may contain such condition as the Governor in Council may approve, and on violation of condition the Commissioner may forfeit and revoke such lease.

The lessee may cultivate so much of the run as may be necessary to provide such produce as may be required for the use of his family and establishment, but not for the purpose of sale or barter.

With the consent of the Commissioner, and on payment of the sum of ten pounds, runs may be divided.

If the value of any run is diminished by sale or other disposal of any portion of it, the Commissioner, upon application of the lessee, may reduce the rent.

The rent is payable half-yearly in advance, on the first day of April and the first day of October.

A lease is determinable if the rent remains unpaid for one month after it becomes due, and is also determinable if the lot is required for sale or any public purpose,—in such case six months' notice must be given to the lessee before the land is resumed by the Crown, and the lessee becomes entitled to receive from the Crown compensation for the value of all fences, buildings, and other permanent improvements he may have made during the currency of his lease.

The rent overdue on any Crown Land may be recovered by process of law.

Leases for other than Pastoral purposes.

The Governor in Council may grant leases for a period not exceeding fourteen years of any land bordering upon a navigable river, or on the sea, &c., if required for the purpose of constructing wharves, docks, slips, or any other works of public utility. No such lease may interfere with the right of access to the sea, river, &c. on the part of any neighbouring proprietor, nor may it injuriously affect the navigation. For whatever purpose the land is leased, the lease may be determined in case of non-completion of the works, or violation of any conditions under which the lease was granted ; and in any case the land may be resumed if required for the defence of the Colony.

The Governor in Council may also, under similar conditions, grant leases for a period not exceeding fourteen years, for the right of constructing water-courses, &c. across any Crown Lands ; and may similarly lease for a period not exceeding thirty years any portion of a Crown reserve for the purpose of the construction thereon of any manufactory, mill, or such other work ; but no such lease may tend to the obstruction of any road or the pollution of any river.

Every such lease shall be liable to forfeiture in case of non-completion of the works for which the lease was granted.

Leases of Islands.

The Commissioner may let by public auction any island or part thereof, except such islands as may be reserved for the preservation of Mutton Birds or for other purposes, for a term of fourteen years ; notice to be published in the *Gazette* and in one newspaper published in Launceston and Hobart respectively, at least sixty days beforehand. The rent is payable half-yearly in advance.

Leases of Land for Railways, &c.

The Commissioner may lease for any period not exceeding fourteen years to any person applying for the same any land required for the purpose of constructing tramways or railways, the Governor in Council fixing the terms and conditions.

Licences to reside on Gold Fields.

Licences to reside on Gold Fields may be issued by the Commissioner, entitling the holder to reside on and cultivate any land not exceeding five acres. Such licence to continue in force for a period not exceeding one year from the date of issue, and subject to the following and any other conditions the Commissioner may impose :—

The licence will not be granted for the occupation of lands comprised within reserves or towns.

Lands so situated that the occupation thereof would obstruct access of holders of Miners' Rights, wood or other licences, to timber and water.

Land comprising two or more detached portions.

Lands situated on both banks of a river or creek, or on both sides of a roadway or frequented track.

Lands required for mining purposes, or if included in any mining claim or held under mining lease, unless with the consent in writing of the claimholders or lessees first had and obtained.

Lands whereon are any dwellings, improvements, or crops, not the property of the applicant for a licence.

The licence fee is 10*s.* per acre per annum, payable in advance.

The licence only confers the right to use the land for the purpose for which the licence has been issued, and for no other purpose whatsoever.

The licensee may not assign, sublet, or part with his interest without the Commissioner's consent.

The licensee must reside upon his land, or enclose it with a substantial fence, and cultivate at least one-fifth portion thereof.

The land may be resumed for mining purposes on payment of compensation for damage done.

Any miner may, with the consent of the Commissioner, enter upon the land and search for gold without paying compensation, except for damage done to any orchard, garden, or crops.

Any persons possessed of the right to mine on the land may occupy the land for mining purposes without paying compensation.

The Governor in Council may resume the land if required for any public purpose, compensation being decided by a Commissioner of Gold Fields.

Timber Licences.

The Governor in Council has the power to set apart such lands as he considers fit for the preservation and growth of timber, and may also prohibit the cutting of timber upon any Crown Lands he may specify in his Proclamation.

The Commissioner may authorise Timber Licences to be issued for cutting timber, &c. on any lands available for the purpose. Regulations under which such licences are issued are as follows:—

Timber Licences, &c.

Licences to fell, split, and saw timber may be obtained by application through the Police, the Bailiffs of Crown Lands, or any person whom the Minister may appoint for that purpose, on payment of the under-mentioned Fees. The licence will be in the form in the Schedule A. of the Crown Lands Regulations, and only applies to the particular locality for which it is issued.

Fees.

Purpose of Licence.	Fee for each person employed.
Fell, split, and saw ordinary timber.....	5*s.* per month.
Fell, split, and saw blackwood	2*s.* 6*d.* per week.
Fell and remove ordinary timber in log.....	5*s.* per week.
Fell and remove blackwood in log.....	10*s.* per month.
Burn charcoal from ordinary timber.....	2*s.* 6*d.* per week.
Make bricks, pottery, and earthenware.....	£2 10*s.* per quarter.
Procure shells, gravel, earth, &c.....	5*s.* per week.

Licences to cut pine and strip wattle-bark are issued under special Regulations, and may be obtained from the Conservator of Forests.

The Minister may, by notice to be published in the *Gazette*, withdraw any Lands of the Crown from the operation of Timber Licences, or may prohibit the cutting of any particular kind of timber in any specified locality.

Timber Licences will not apply to any land applied for by a Selector who has paid Survey Fee for such land, nor to any land set apart for any public purpose.

Lands held under lease from the Crown, lands set apart for townships, and lands surveyed for sale, will be available only by the written authority of the Commissioner.

Timber Licences will not be available for use within the boundaries of any Forest Reserve except by the written permission of the Commissioner of Crown Lands, and subject to such conditions and such fees as he may consider necessary.

The lessee or licensee of any Lands of the Crown occupied for mining or pastoral purposes may notify in writing to the Commissioner any reasonable objections he may have against Timber Licences being granted to any person in respect to the lands held by virtue of such lease, and the Commissioner may, if he sees fit, after investigating such objections, refuse to issue a licence in respect of such leased lands.

The holder of a lease or licence for the occupation of any Crown Lands may cut any timber required by him as tenant of the several lands, but not for the purposes of sale or barter.

Every person holding a Timber Licence must exhibit it, if called upon to do so, to any officer of the Government authorised on that behalf, or to any Bailiff of Crown Lands or of Mines, or to any Police Constable, or to the occupier of any run on which the holder of the Timber Licence may be cutting, or to the agent of such occupier. Any person refusing to produce his licence when so called upon as aforesaid will be deemed to be unlicensed.

A Bailiff of Crown Lands, or any Police Officer, may seize any timber which there is good reason to believe was cut upon any Lands of the Crown without licence, or by a person deemed to be unlicensed under the provisions of the preceding Regulation, and upon the authority of the Commissioner such timber may be sold in such manner as the Commissioner may direct. Provided that fourteen days' notice of such intention to sell be published in the *Gazette*, and at least once in a newspaper.

Timber split or sawn upon any Lands of the Crown and not at once removed, must be stacked, and each stack marked with the licensee's initials; logs not removed must each be branded and numbered, and the licensee shall furnish the Bailiff of Crown Lands or Police with particulars of the number and brands of such logs. Any logs or timber not so marked, and any timber in the log which may remain more than six months upon Crown Lands, may be seized and disposed of as the property of the Crown.

The holder of a Timber Licence, on written notice from a Selector under the 31st Sect. of "Crown Lands Act, 1890," shall desist from cutting or splitting timber upon any Lands of the Crown which may have been selected for purchase, and the production of a receipt for the Survey Fee shall be deemed sufficient proof that the land has been selected. The Licensee shall, within Three months from the date of such notice, remove from such land all the timber he may have cut under licence during the period previous to such notice being given. All cut timber remaining upon the land after the expiration of the term of Three months as aforesaid shall be the property of the Purchaser of the land.

The Licensee will not be entitled to claim more than Three trees that may be felled but not cut up.

No trees may be felled so as to obstruct any road or track.

Licences for the purpose of obtaining and burning Limestone, obtaining earth for the purposes of making Bricks, Pottery, or Earthenware of any description, will authorise the holder to enter upon such Lands of the

Crown as the Commissioner may approve of, not exceeding Three acres in extent, and subject to the condition that the same be inclosed with a substantial four-rail or four-log fence not less than 4ft. 6in. in height.

Penalty for destroying Surveyor's Marks.

Every person who wilfully and maliciously removes, alters, defaces, injures, or destroys any Surveyor's pegs or any land-mark, or, with the intent of misleading any person or persons, imitates any Surveyor's mark, shall on conviction of every such offence forfeit and pay a penalty of not less than Ten Pounds and not exceeding Fifty Pounds.

General Observations upon Unalienated Lands suitable for Agricultural Purposes.

The demand for the rich agricultural lands of the Colony continues to be very satisfactory, as the country is being opened up by roads and Public Works. The greatest advance in selection has taken place in the prosperous counties of Dorset, Devon, and Wellington, where there are still large areas of first-class scrub land unalienated, also large areas of similar country in the counties of Buckingham and Kent awaiting development. These lands contain extensive supplies of good splitting and sawing timber, as well as beds of magnificent blackwood and other timbers of less importance, and are principally of basaltic formation, varying from dark chocolate-coloured soil to light sandy loam. The good land is generally covered with heavy dense scrub, consisting of dogwood, musk, peartree, sassafras, and myrtle, with a dense undergrowth of ferns. Large tree-ferns abound in the gullies, in some instances almost to the exclusion of other growths.

Clearing Land.

The matter of clearing such lands is a serious consideration, and entails a large amount of labour and general knowledge of the work to carry it on successfully. To those, however, who possess the necessary experience, there is nothing very formidable in the undertaking, nor is any great amount of capital required to make satisfactory progress in establishing comfortable homesteads, where every acre cleared will yield cereals, root crops of every description, and all kinds of vegetables and artificial grasses in abundance. The only assistance the *bonâ fide* settler requires is reasonable provision for the transit of his produce to the market.

Settlement in Outlying Districts.

Recognising the great importance of encouraging settlement in the outlying districts, a new Land Act was passed into law, and came into operation on the first day of January, 1891, containing exceptionally liberal terms to the selector, better security for leasing pastoral lands, and for the disposal of agricultural lands in mining districts. This latter measure is one materially affecting the interests of the country (as in many instances rich land is found in immediate proximity to mining centres). It is deserving of general and substantial support, the more so that it does not contain any conditions prejudicial to the mining industry.

A proposal has been submitted to the Government for a number of exploration surveys throughout the principal districts of the country in order to obtain reliable reports on the situation, extent, and quality of the agricultural lands for the information of intending selectors, and as a guide to the future extension of roads and railways.

The construction of the railway between Launceston and Scottsdale is

proving very beneficial to this and the adjoining districts, which have been hitherto badly accommodated with roads or other facilities for conveying produce to market.

The good land still available to the selector in the County of Dorset—extending from the northern slopes of Mount Barrow to the eastern tributaries of the Ringarooma River—comprises a large area of heavy scrub country, much of which, although rough and broken in places, will yet be settled upon. The importance of this district will no doubt induce Parliament to extend the Scottsdale Railway to Ringarooma in the near future.

Settlement in this district has been much impeded for years, consequent on so much of the land having been withdrawn from sale and selection as a protection against unduly hampering the mining industry. Recognising this fact, provision has been made in the Crown Lands Act of 1890 authorising selection in mining areas. There was a considerable area of land thrown open to selection, March, 1890, which resulted in over 3000 acres being applied for in a few months. The maximum area allowed being 100 acres has to some extent reduced the acreage that would otherwise have been selected.

At the present time there are some 20,000 acres held under lease for mining purposes in this portion of the County of Dorset, much of which will be taken up for agricultural settlement when the alluvial tin deposits have been worked out.

The Ringarooma land is unquestionably very fertile, and in a partially cleared state has been disposed of at £16 per acre. The climate is excellent, and the district generally is admirably suited to dairying pursuits. In common with the good land in other localities, it possesses very valuable beds of blackwood and other splitting timbers, that will be turned to account by the additional facilities of communication that a railway will afford; and being backed up by the extensive tin mines of the North-East Coast—stretching away from the Upper Ringarooma to George's Bay—it is unquestionably situated in a most favoured locality.

As showing the rapidity with which selection follows railway construction in similar country, I would remark that, after the Derwent Valley Line was extended from New Norfolk to Glenora, and a report obtained on the Russell's Falls district, 10,000 acres of land were applied for in two months, varying in area from 25 acres to 320 acres. About 6000 acres of this land have proved to be suitable for agriculture, and have been sarveyed in blocks of various dimensions.

The Derwent Valley Railway is likely to be further extended within the next few years beyond Mount Field West towards the Florentine River, and ultimately on to the West Coast, to join the Strahan-Zeehan Line now on the point of completion.

This line of railway will open up not only large areas of good agricultural and pastoral lands, but also some of the most promising mineral country, in which the existence of gold, copper, and other minerals has been known for nearly a quarter of a century.

The North-Western Railway system is now opened for traffic along the North Coast to the town of Ulverstone, and a survey of an inland branch from that town to Nietta is in progress. This line might be carried on for nearly 30 miles through good agricultural land. Already substantial improvements are being made on lands selected 24 miles from the coast.

The North-Western system will no doubt be extended to join the Van Diemen's Land Company's Line at Emu Bay during the next few years. The survey of this extension has already been made, and the construction of the railway sanctioned by Parliament. This will bring the Mount Bischoff tin mine into railway communication with the capital of the colony.

The survey for a further extension westward (Emu Bay to Table Cape) has also been effected. The General Manager of Railways has furnished a most favourable report upon the future prospects of this extension from a commercial point of view. When constructed this railway will no doubt give a great impetus to settlement in the County of Wellington, in which county the average annual selection for the last five years is over 7000 acres.

A railway from Brighton to Apsley has been constructed, and is now open for traffic (1891).

The railway from Deloraine, on the Western Line, is now opened to Mole Creek, *viâ* Chudleigh, but there is no immediate prospect of payable returns therefrom.

A railway from Bellerive to Sorell is being constructed. This line will afford a large district the advantages derived from such a mode of communication, and is trending in the direction of a considerable extent of good and passable Crown Land, along portions of the eastern shore of the County of Pembroke. This tract of country faces Maria Island, situated on the East Coast of Tasmania, and about seven miles distant from the main land at the nearest point. Maria Island is at present leased to a Company bearing that name, and contains 24,000 acres of land, portions of which are of very good quality. The operations of the Maria Island Company have been brought into prominent notice during the last few years, and it is anticipated that a large export trade of lime and Portland cement will be established on the island before long, which will give additional importance to the local district. Already a number of substantial buildings, including a commodious hotel, have been erected by this Company, with several plantations of vines and other improvements, in view of introducing the important industry of viticulture on a large scale.

In these brief notes I have necessarily omitted mention of many important districts, such as the Huon. This district provides a large export of valuable fruits, equal, if not superior, to anything grown in the Australias, the soil and climate being specially adapted to such industry. Owing to the rough and broken nature of the country in this district, it is not in favour with agriculturists ; but to those desiring to turn their attention to the culture of fruit it offers probably greater advantages as to climate, soil, and situation than any other part of Tasmania.

PART II.

Mineral Lands.

(By F. BELSTEAD, *Esq., Secretary of Mines.)*

THE mineral-bearing lands of the Colony are dealt with under special laws and regulations, distinct from the Waste Lands Acts. The department is controlled by the Minister of Lands and Works, through the direct supervision of the Secretary of Mines, under whom are appointed Commissioners of Mines and Gold Fields for each division of the Colony, who act judicially in the settlement of disputes, and conduct all business matters connected with the mining industry.

The Gold Fields Acts and Regulations provide for the issue of—

1. *Miners' Rights*, under which, at the annual cost of five shillings the holder is authorised to search and mine for gold upon any Crown Land, and to acquire possession of a quarter of an acre (or, in the case of abandoned ground previously worked, one acre) of land for mining or residence ; the use of firewoad and timber for domestic or mining purposes being also allowed under such right.

2. *Prospectors' Protection Orders.*—Holders of Miners' Rights may, upon payment of the sum of five shillings, obtain from a Commissioner prospecting claims of areas varying from 50 acres to 10 acres, according to their distance from previously known deposits, which they may hold for a period of not exceeding 12 months. Should a discovery be made, the discoverer may secure a claim free of rent of not exceeding five acres in the case of gold in alluvial deposit, or of not exceeding 20 acres in the case of gold in quartz.

3. *Business Licences*, authorising the holder to occupy upon any Gold Field a quarter of an acre of land for business purposes, are issued upon the annual payment of four pounds.

4. *Leases* of areas not exceeding 10 acres are issued for a period of 10 years, with right of renewal, at a rental of one pound per acre per annum, under which the lessee is entitled to mine for gold, to put up and remove any building or other erection, to cut timber on and remove the same, and to remove stone, clay, or gravel from any Waste Lands of the Crown for the purpose of building for himself any place of residence or for mining purposes. Leases of sites for machinery are also issued for a similar term, and at a like rental.

5. *Grants of Water Rights*, authorising the grantee, his executors, &c. to take and divert water which Her Majesty may lawfully take and divert from any stream, &c. in order to supply water for mining or for the domestic purposes of those engaged in mining, and authorising the holder to cut races, &c. for conveying, and to make dams for conserving such water, are issued for periods of 10 years, at an annual rental of £1 per sluice-head of 16 square inches.

6. *Easement Licences*, authorising the licensee to occupy such Crown Land as may be necessary to enable him to conveniently work the leasehold held by him, to cut drains, make roads, tramways, channels, shafts, &c., are issued for a term of 10 years free of rent.

Provisions are made for the settlement of disputes and partnership questions, regulating the mode of applying for and marking claims and areas, the shape and survey of claims, priority of rights, conditions of working, mode of forfeiture, &c.

Minerals and Metals other than Gold.

The Mineral Lands Acts and Regulations deal with all minerals and metals other than gold. Under these are issued—

1. *Residence Licences*, at a cost of ten shillings per annum, authorising the holder to take possession of and occupy a quarter of an acre of land for residence or business purposes.

2. *Prospectors' Licences*, at a cost of ten shillings per annum, entitling the holder to prospect for minerals upon 20 acres of Crown Land.

3. *Leases*, at an annual rental of five shillings per acre, for any term not exceeding 21 years, with provisions for renewal, of areas not exceeding 80 acres nor less than 20 acres, entitling the holder to mine for and win all minerals and metals not being gold, and to cut timber on and remove the same, and to remove any stone, clay, or gravel from any Crown Land for building for himself any place of residence on the leased claim, or for mining purposes, or for the domestic purposes of those engaged in mining thereon.

For lands containing coal, shale, slate, freestone, or limestone, the area which may be leased shall not exceed 320 acres, and the rental is 2*s.* 6*d.* per acre. Leases at peppercorn rent may be granted to persons who shall discover minerals, of areas not less than 100 acres or more than 320 acres, for coal, shale, slate, freestone, or limestone, and not less than 20 acres or more than 80 acres for any other mineral, according to the distance from a spot where the same mineral is at the time of the discovery known to exist.

4. *Leases of Machinery Sites*, not exceeding five acres, at an annual rental of £1 per head for a period of 21 years, with provisions for renewal.

5. *Grants of Water Rights* for a term of 21 years, renewable, at an annual rental of £1 per head of 16 square inches, carrying the right to construct races, dams, and reservoirs.

6. *Easement Licences*, for the conveyance and deposit of sludge, construction of roads, tramways, shafts, &c. for a term of 21 years, renewable, are granted to lessees free of rental.

The Law and Regulations provide the mode of settling disputes and partnership questions, adjusting conflicting claims, regulating the marking and survey of areas, conditions of working, forfeiture, &c.

Provisions are further made under separate Acts to enable lessees under any Mining Act to acquire easements through or upon any private land; for regulating appeals to the Supreme Court against the decisions of Commissioners in mining cases; for the regulation and inspection of mines; and also for the incorporation and winding-up of mining companies.

Crown Lands—General.

Crown Land Sales.

Of the 16,778,000 acres of land comprising the Colony of Tasmania, about 4,695,022 acres were either granted or sold on the 31st December 1889. This leaves about 12,082,978* acres as the extent of land not alienated from the Crown on the 31st December, 1890.

The following is a synopsis of the particulars relating to the land sales during the year 1890, together with comparisons in relation to the previous year and to the average of the last decade :—

Crown Land Sales.

	1890.	1889.	1880.	Increase or Decrease as compared with	
				1889.	1880.
Number of Lots—					
Country	610	723	511	—113	109
Town and Suburban	207	435	254	—228	—47
Total	817	1158	765	—341	62
Area, Acres—					
Country	42,986	50,566	37,913	—7580	5073
Town and Suburban	572	885	837	—313	—365
Total	43,558	51,451	38,750	—7893	4708
Amount—					
Country ..... £	57,176	68,319	50,337	—11,143	6639
Town & Suburban £	8454	14,051	5042	—5597	3412
Total ..... £	65,630	82,370	55,379	—16,740	10,251
Amount per Acre—	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Country	1 6 7	1 7 2	1 6 7	0 0 7	...
Town and Suburban	14 15 7	15 17 6	6 0 6	—1 1 11	8 15 1
Mean	1 10 1	1 12 0	1 8 7	0 1 11	0 1 6

* Including 75,500 acres Lakes.

During the year 1890 there were sold 43,558 acres of land, as against 51,451 acres sold during the previous year. Of these, 42,986 acres, or 98·66 per cent., were classed as Country lots, and 572 acres, or 1·34 per cent., as Town and Suburban.

The nominal value of 612 Country lots sold is stated to be £57,176, or £1 6*s.* 7*d.* per acre; while the 207 lots of Town and Suburban sold realised £8454, or £14 15*s.* 7*d.* per acre.

		Decade ending Year **1890.**	Decade ending Year **1880.**
Acres sold	No.	457,585	419,464
Value of Sales	£	670,087	541,527
Ditto per acre	£1	9*s.* 3·45*d.*	£1 5*s.* 9·84*d.*

That is, the value of lands sold during the last decade realised on the average 3*s.* 5·61*d.* more per acre,—*i.e.*, 13·49 per cent. increase.

Ordinary Crown Lands leased.

The following abstract shows the extent of ordinary Crown Lands leased during 1890, together with the amount of rental due in respect of the same. The corresponding figures for 1889 and 1880 are also given for the purposes of comparison.

Particulars.	**1890.**	**1889.**	**1880.**
Tasmania proper.			
Acres leased ..... No.	580,638	565,667	1,742,633
Rental ..... £	4418	4315	7695
Average rental per acre ..... *d.*	1·84	1·83	1·06
Smaller Island Dependencies.			
Acres leased ..... No.	85,555	64,815	815,285
Rental ..... £	589	481	1138
Average rental per acre ..... *d.*	1·65	1·78	0·33
Tasmania and Dependencies.			
Acres leased ..... No.	666,193	630,482	2,557,918
Rental ..... £	5007	4796	8833
Average rental per acre ..... *d.*	1·82	1·83	0·83

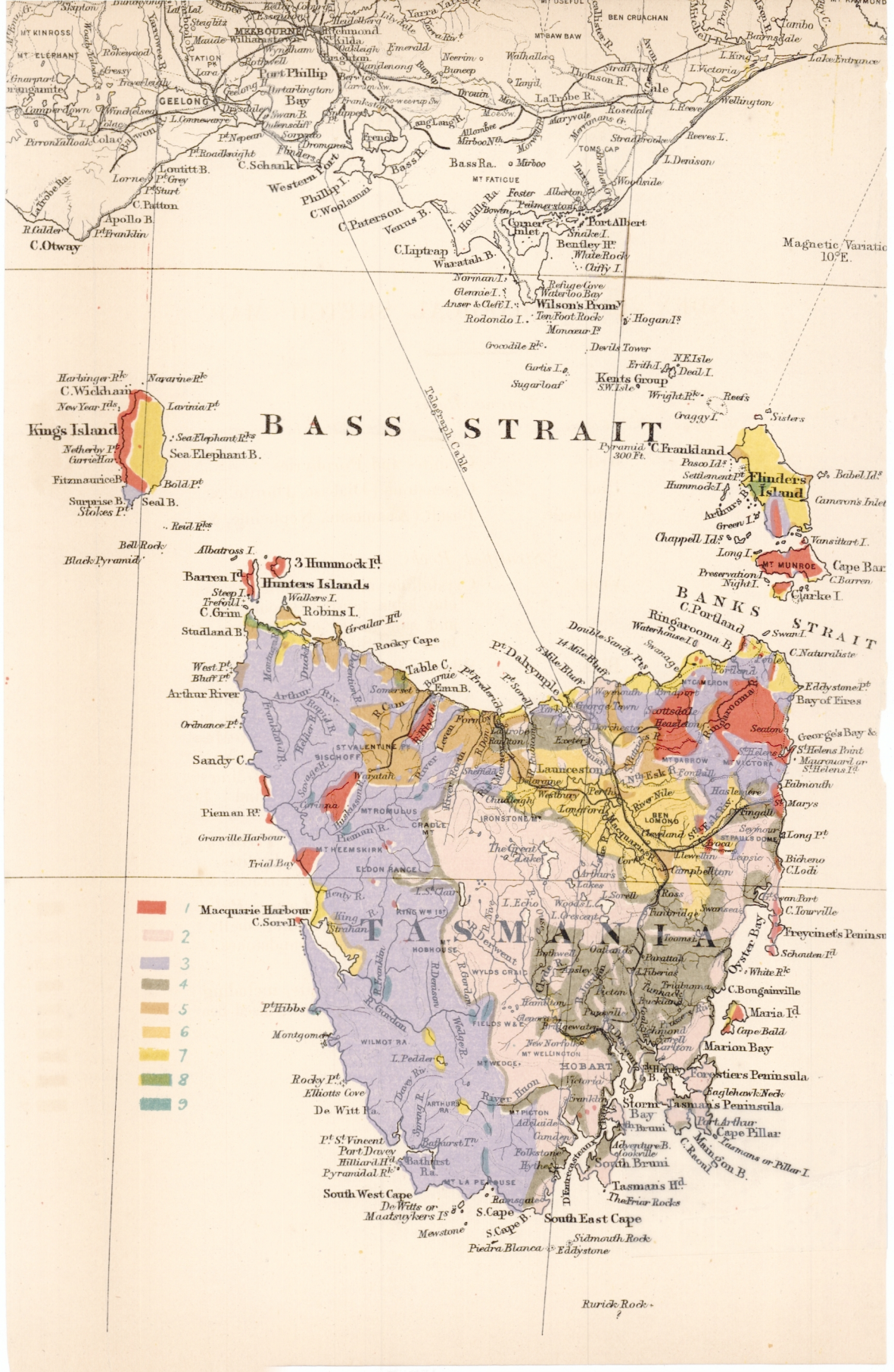
Thus, during the year 1890 the extent of ordinary Crown Land leased was 666,193 acres, as against 630,482 acres in 1889, and 2,557,918 acres in 1880. The nominal rental, £5007, is more than that of the previous year by £211, although the average rental per acre remains almost the same, viz., 1·82*d.*, as against 1·83*d.* The extent of Island dependencies under lease is more than that of the previous year by 20,740 acres.

Mineral Lands leased.

With respect to Mineral Lands leased, the following is a general summary for the years 1886-1890 :—

	1886.	1887.	1888.	1889.	1890.
Gold—					
Number of Leases in force on 31st Dec. ...	128	307	279	375	334
Area ..... No. acres	1308	3083	2869	3568	3152
Rental (nominal) ... £	1308	3083	2869	3568	3152
Tin—					
Number of Leases in force on 31st Dec. ...	683	712	1091	879	757
Area ..... No. acres	24,879	24,599	33,845	28,557	25,091
Rental (nominal) ... £	6219	6150	8461	7139	6273
Other Minerals—					
Number of Leases in force on 31st Dec. ...	46	61	162	363	425
Area ..... No. acres	7304	8647	12,264	25,392	29,016
Rental (nominal) ... £	923	1173	2387	5386	6302
TOTAL—					
Number of Leases in force.....	857	1080	1532	1617	1516
Area ..... No. acres	33,491	36,329	48,978	57,517	57,259
Rental (nominal) ... £	8450	10,406	13,717	16,093	15,727

The foregoing comparative table shows a considerable increase as regards Mineral Lands leased, area and rental, during the year 1890.


BASS STRAIT
TASMANIA
Telegraph Cable
Magnetic Variation 10°E.
MELBOURNE
GEELONG
Port Phillip Bay
Western Port
Phillip I.
French I.
Bass R.
Bass Ra.
Mt Fatigue
Port Albert
Snake I.
Bentley Pt
Wilson's Promy
Kents Group
S.W. Isle
N.E. Isle
Deal I.
Hogan Is
Devils Tower
Rodondo I.
Ten Foot Rock
Monarar Pt
Refuge Cove
Waterloo Bay
Glennie I.
Anser & Cleft I.
Norman I.
Warratah B.
C. Liptrap
C. Paterson
Venus B.
C. Wickham
Lavinia Pt
Kings Island
Sea Elephant Bay
Sea Elephant Rks
Fitzmaurice B.
Bold Pt
Surprise B.
Seal B.
Stokes Pt
Reid Rks
Bell Rock
Black Pyramid
Albatross I.
3 Hummock Is
Hunters Islands
Barren Is
Steep I.
Trefoil I.
Wallers I.
Robins I.
C. Grim
Studland B.
Rocky Cape
Table C.
Emu B.
Arthur River
Ordnance Pt
Sandy C.
Pieman R.
Granville Harbour
Trial Bay
Macquarie Harbour
C. Sorell
Pt Hibbs
Montgomery
Rocky Pt
Elliotts Cove
De Witt Ra.
Pt St Vincent
Port Davey
Hilliard Hd
Pyramidal Rk
South West Cape
De Witts or Maatsuykers Is
S. Cape
S. Cape B.
Mewstone
Piedra Blanca
South East Cape
Sidmouth Rock
Eddystone
Tasmans Hd.
The Four Rocks
Storm Bay
Tasmans Peninsula
Port Arthur
Cape Pillar
Tasmans or Pillar I.
Maingon B.
C. Raoul
Forestiers Peninsula
Eaglehawk Neck
Marion Bay
Cape Bald
Maria Id
C. Bougainville
Oyster Bay
Freycinet's Peninsula
Schouten Id
C. Tourville
Swan Port
Bicheno
Long Pt
Seymour
Eddystone Pt
Bay of Fires
C. Naturaliste
Swan I.
Ringarooma B.
Waterhouse I.
Double Sandy Pt
14 Mile Bluff
5 Mile Bluff
Pt Dalrymple
Pt Sorell
Pt Frederick
C. Portland
C. Frankland
Pyramid 300 Ft.
Flinders Island
Babel Id
Cameron's Inlet
Arthurs Pk
Green I.
Chappell Id
Long I.
Mt Munroe
Cape Barren
C. Barren
Night I.
Preservation I
Clarke I.
Tasmania
Launceston
Hobart
Mt Wellington
Mt Victoria
Mt Barrow
Ben Lomond
Mt Romulus
Mt Heemskirk
Mt Ironstone
Cradle Mt
Eldon Range
Mt Hobhouse
Mt Picton
Mt La Perouse
Mt Wedge
Wilmot Ra
Fields Wks
Wyld's Creek
Arthurs Lakes
Great Lake
Lake St Clair
Ring Wm 1st
Derwent R.
Franklin R.
Gordon R.
Denison R.
Huon R.
Arthur R.
Forth R.
Mersey R.
Tamar R.
Esk R.
Macquarie R.
Ouse R.
Derwent Bridge
Strahan
Queenstown
Zeehan
Waratah
Burnie
Devonport
Ulverstone
Latrobe
Deloraine
Westbury
Longford
Perth
Evandale
Campbell Town
Ross
Oatlands
Tunbridge
Swansea
Triabunna
Orford
Richmond
Sorell
Brighton
Bridgewater
New Norfolk
Glenorchy
Kingston
Sandy Bay
Battery Pt
Hobart
Port Cygnet
Huonville
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Geeveston
Dover
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INDEX TO GEOLOGICAL SKETCH MAP.

Igneous Rocks.

Reference No.	*Colour.*	*Nature of Rock or Formation.*
1	Red	Granites and Porphyries.
2	Pink	Greenstone (Diabase, Diorite, &c.)
5	Gamboge	Basalt (Anamesite, Nepheline, &c.)

Stratified Rocks.

3	Violet	Crystalline and metamorphic schists, clayslates, quartzites, conglomerates, and sandstones of Archæan, Cambrian and Silurian Age.
9	Blue	Silurian limestones.
4	Grey	All rocks lying between the *Upper Silurian* and *Lower Tertiary*, including the Carboniferous and Mesozoic Coal Measures ; fossiliferous mudstones, sandstones, and limestones (Upper Palæozoic) and Lower Mesozoic sandstones.
6	Orange-red	Lacustrine deposits of *Tertiary Age*, including leaf-beds, lignites, sandstones, clays, gravel terraces, &c.
8	Green	Marine Beds of *Lower Palæogene Age* (Eocene), including shelly limestones, calcareous sandstones, coral-rag, &c.
7	Yellow	Post Tertiary Deposits, including consolidated sand-dunes, raised beaches, Esker drifts, &c.

CHAPTER V.

Geology and Mineral Products.

Geological Formations.

Brief Outline.

With the exception of certain marine beds belonging to the Cretaceous period, Tasmania presents within her limited boundaries a very complete conspectus of all the rock formations of Australia. All the great systems known to geologists are well represented. Tasmanian geology has engaged the close attention of many distinguished observers during the last 50 years, and its history is now fairly well known. Prominent among its investigators are the following names:—Count Strzelecki, J. Beete Jukes, A. R. C. Selwyn, Rev. W. B. Clarke, Dr. Milligan, Chas. Gould, Rev. J. E. Tenison-Woods, R. Etheridge, jun., Prof. R. Tate, T. Stephens, S. H. Wintle, T. Hainsworth, and G. Thureau. The author of this work has also contributed many papers on stratigraphy and palæontology, and has given a very comprehensive account of the labours of previous observers and of the geology of the Island in his "Systematic Account of the Geology of Tasmania,"* from which the materials of the present sketch have been obtained.

The following is a summary of the great divisions embraced in the classification of the various rock formations:—

Period.	System.	Group.	Formation.	Examples.
CAINOZOIC	QUATERNARY	*Recent*	Native shell mounds, sand-dunes; alluvium; cave-bone deposits.[1]	Sea Coast [1]Chudleigh
		Pleistocene	Raised beaches	North-West Coast, Furneaux Group, Kent's Group
			Helicidæ sandstone	Furneaux Group, Kent's Group
	TERTIARY	*Neogene*	Older terrace drifts	
		Palæogene	Basalts and tuffs and underlying leaf-beds, clays, lignites, older stanniferous and auriferous drifts.	Breadalbane, Beaconsfield, Launceston, Hobart, Waratah, Macquarie Harbour, &c.
			Marine beds	Table Cape, Cape Grim, Flinders' Island

* "Systematic Account of the Geology of Tasmania." By R. M. Johnston, F.L.S., pp. xxi. and 409, and 57 Plates of Typical Fossils, with 23 Engravings, Maps, Sections, &c. Royal quarto. (Hobart, 1888.)

Period.	System.	Group.	Formation.	Examples.
MESOZOIC	...	*Upper*	Later intrusions of diabase (greenstone); sandstones, shales, and coal seams. (Upper Coal Measures)	Fingal, Longford, York Plains, Seymour, Douglas River, Spring Bay, Jerusalem, Impression Bay, Hamilton, Hobart, Sandfly, Port Esperance, &c.
		Lower	Older sandstone formations	Knocklofty, Hobart Waterworks, Cascades, North-West Bay, &c.
PALÆOZOIC	CARBONIFEROUS		Port Cygnet and Bruni Coal Measures	Mount Cygnet Coal Measures, Adventure Bay Coal Measures
			Upper Marine Beds	Mersey, Hobart
			Lower Coal Measures	Mersey, Fingal, Tippagory Range, Henty River
			Tasmanite Beds	Mersey
			Lower Marine Beds	Northern and Eastern Tasmania
	DEVONIAN ?		Upper soft slates	Fingal
PALÆOZOIC	SILURIAN		*Eldon Group.*—	
			Lower slates	Fingal
			Eldon Valley clay slates and mudstones	Eldon Valley
		Upper	Brachiopod sandstones and conglomerates	Mount Lyell, Mount Zeehan, Queen River, Magnet Range
			Talcose schists and slates	Queen River, Mount Lyell
			Gordon River Group—	
		Lower	Limestones, conglomerates	Gordon River
			Auriferous slate group	Lisle, Beaconsfield, Fingal
	CAMBRIAN		Primordial Calciferous Group	Mersey
			Magog Group	Chudleigh
			Dikelocephalus Group	Caroline Creek
	ARCHÆAN		Quartzites and metamorphic schists	North-eastern and Western Tasmania

LOWER PALÆOZOIC.

It is difficult in a brief sketch to indicate the distribution of the various rock systems, but in a general way it may be correct to state broadly that the sedimentary rocks of Archæan and Silurian age are mainly exposed, forming remarkably rugged ranges, in the extreme

north-eastern part of the Island in the vicinity of Gladstone, Beaconsfield, Lefroy, Branxholm Mangana, and George's Bay; and occupy the greater part of the Western Highlands, forming a broad strip running obliquely and continuously between the extremes of the granite headlands of Hummock Island in the north-west to the bold schistose mountains terminating in the southernmost extremity of the Island beyond Mount La Perouse, near the South Cape.

The rocks of *Archæan* age, consisting mainly of crystalline schists, mica-schists, and quartzites, are usually greatly metamorphosed, and are characterised by highly folded, tilted, crumpled, and puckered strata. They rarely exhibit any traces of former life.

The *Cambrian* rocks in Caroline Creek, Mersey, consist of rusty sandstone, thinly bedded, usually inclined at a considerable angle. The remains of Trilobites *(Dikelocephalus*, &c.*)* and the tracks of Annelids are very abundant.

The *Silurian* rocks consist mainly of hydro-mica schists, clay slates, sandstones, grits, conglomerates, and thickly bedded close-grained limestones. Although not so greatly metamorphosed as the *Archæan* rocks, they are generally found tilted at high angles, and are usually much folded and dislocated. Their members are frequently penetrated by lodes and veins, and in various parts of the Island, as at Mount Bischoff, Mount Zeehan, Mount Dundas, Mount Lyell, Heazlewood, Beaconsfield, these are often highly charged with valuable metals such as gold, tin, silver, lead, antimony, bismuth, &c. The limestones of the Gordon, and the sandstones of Queen River, Mount Lyell, Honeysuckle Hill, and Heazlewood are rich in fossils. Corals and chambered shells of the *Orthoceras* type chracterise the limestones; and the sandstones are replete with casts of comparatively small or minute Brachiopods of the genera *Pentamerus*, *Rhynconella*, *Orthis*, *Atrypa*, *Strophomena*, and *Spirifer*. The absence of large-winged Spirifers is the most conspicuous feature which distinguishes these sandstones from those of *Upper Palæozoic* age. These older rocks are also exposed in the neighbourhood of Mount Roland, Chudleigh, and Mersey River, and they are to be traced forming a marginal boundary in the east through Freycinet Peninsula and Schouten and Maria Islands. Granites and porphyries are commonly associated with them in various localities, as at Gladstone, Blue Tier, Fingal, Avoca, Schouten and Maria Islands, Mount Heemskirk, Mount Bischoff, Housetop, Meredith Range, and elsewhere, in all of which places valuable metals occur more or less richly.

Intrusive Greenstones.

Towards the centre of the Island the sedimentary rocks are overlaid by the massive greenstone plateau of the Lake Country. Mountain chains, isolated bosses, and minor ridges of greenstone ramify the remaining part of the south and eastern portion of the Island, breaking up the stratified rocks of Upper Palæozoic and Mesozoic age into many isolated basins. Generally, the stratified rocks of Carboniferous and Mesozoic age are in this region so intimately associated with the older and newer diabasic greenstones, that the latter cannot very well be considered apart in any attempt to describe them. The diabasic green-

stones form the elevated plateaux and mountains, as well as the minor dividing ranges throughout a great part of the midland, northern, eastern, and south-eastern parts of the Island; and comparatively, if not wholly, they may be said to be absent from the extreme western part, where the older Silurian and metamorphic rocks prevail, with their associated granites and porphyries.

The great central greenstone plateau of the Lake Country, in its northern part especially, preserves a general rugged or undulating level of about 4000 feet altitude, and its higher bosses and peaks and its valleys do not vary much more than 1000 feet above or below this uniform level. From the Picton to Gad's Hill, a distance northerly of over 100 miles, its westerly limit may be traced, forming a bold and widely undulating margin relative to the western country, whose immediate general upland surface ranges between 2000 and 3000 feet above sea level. This margin is markedly broken by the elevated outlying spur forming the Eldon Range, near Lake St. Clair. From Gad's Hill in a south-easterly direction to the Table Mountain, a distance of not less than 90 miles, its similarly indented margin presents a still bolder character as it approaches and contrasts with the lower fertile plains and valleys of the Meander and South Esk, which seldom exceed an altitude of from 600 to 700 feet above sea level. At the great northern and southern water divide in the neighbourhood of Table Mountain it suddenly recedes and contracts, forming a large bight in the direction of the Upper Derwent tributaries, notably the Rivers Nive and Ouse, from which point its level tends to fall, and its marginal boundaries, though frequently rising into high mountain ridges towards Mount Wellington, no longer maintains the uniform boldness of outline which characterises its northern aspect.

With the exception of Ben Lomond, which attains an altitude of 5010 feet, the remaining isolated or ramifying greenstone dividing ranges, so largely distributed throughout the basin of the Tamar, Derwent, and Coal River, and along the broken or deeply indented coast line of the East, are tame in character compared with the elevated far-extending tiers of the Great Central Plateau.

Nearly everywhere along and against this plateau and the greenstone crests of Ben Lomond, Mount Dromedary, Mount Nicholas, Fingal Tier, Eldon Range, Mount Gell, Grass-Tree Hill, Constitution Hill, and most of the more elevated south-eastern dividing ranges, the various members of the Carboniferous and overlying Mesozoic rocks are seen to repose invariably almost in a horizontal position, or at most with a very slight dip towards or away from them. It would seem probable that the great masses of the greenstone rocks were erupted prior to the deposition even of the lower members of the Carboniferous mudstones and limestones, and at a time when, from secular causes, the older rocks of the south-eastern and central parts of the Island, after long subaerial exposure, were slowly being submerged below the level of the ancient Upper Palæozoic sea. The minor greenstone ridges, like those at Spring Hill and Domain, Hobart, undoubtedly represent greenstones of a later date. There is little difficulty in distinguishing these Upper Palæozoic and Mesozoic greenstones from the numerous and extensive sheets of basalt which, with their associated tuffs, so frequently

overspread the Tertiary lignites, clays, and leaf-beds, and which probably mark the close of the Tertiary Palæogene period in Tasmania.

Upper Palæozoic.

Carboniferous Sedimentary Rocks.

The characteristic rocks of the Carboniferous system in Tasmania chiefly consist of thin regular bands of siliceous conglomerates and grits, blue slaty shales, limestones, argillo-calcareous and argillo-arenaceous rock of a yellow or whitish appearance, with intercalated bands near its uppermost limits, composed of white, red, and yellow sandstones, fine greyish laminated shales, bituminous shales, and occasionally thin coal seams.

The members are for the most part extremely rich in fossils, and are more or less horizontally disposed, although greatly dislocated by intrusions of greenstone and secular upheaval, and subsequently subjected to a long-continued denudation. The varying altitudes (sea level to 2500 feet) at which apparently the same members are found, together with the deep valleys of erosion so common throughout the country, testify to the vastness of the dynamical agencies which have operated upon them since their deposition.

In the Basin of the Mersey there is evidence of a temporary local elevation and subsequent depression of the floor of an old arm of the Upper Palæozoic sea, between which elevation and depression sedimentary deposits of carbonaceous matter of considerable thickness were formed, derived from a luxuriant land vegetation consisting largely of club mosses, from which spore cases *(Tasmanites punctatus)* were derived, also net-veined ferns of a peculiar type, represented by the genera *Glossopteris* and *Gangamopteris*, with which are associated numerous spathulate leaves of a plant named *Nœggerathiopsis*, supposed to be allied to the conifers. The fossils of the marine beds are very numerous, but the characteristic forms, consisting of large-winged *Spirifers* and lace-like *Fenestellæ*, enable anyone to easily identify the rocks in which they are found. The various beds of the system are well represented in the neighbourhood of Hobart, especially so in the cutting of the Huon Road towards the *Fern-tree Inn*.

Mesozoic Period.

The rocks of Mesozoic age in Tasmania consist mainly of variegated sandstones, regularly or falsely bedded shales, blue and white clays often of great thickness, and extending throughout the midland, southern, and south-eastern districts. They frequently contain seams of coal, sometimes, as in the Fingal, Seymour, Douglas River, and Sandfly districts, of considerable thickness and of fair quality. The beds of the system are distributed in distinct basins, often greatly disturbed and broken up by intruisive dykes of greenstone, and on this account, and because of the great sameness of fossil plant remains, there is great difficulty in attempting to break up the beds of the system into subdivisions. The beds, as a whole, probably cover the whole period from the close of the Upper Palæozoic Coal Measures to the beginning of

the Tertiary period. No marine deposits break the sequence of the upper division, as in Queensland and New South Wales. The great lignite and leaf-bed series (Palæogene), with leaves of the oak, elm, laurel, beech, cinnamon, and other trees, generally overlie the Mesozic members, in the Launceston Tertiary Basin. Two great divisions, however, may be determined between which there is a very remarkable stratigraphical and palæontological break.

The Upper Division (Coal Measures) is wholly terrestrial and lacustrine, and includes the various coal measure basins of the Derwent, Jerusalem, York Plains, Fingal, Longford, Hamilton, Spring Bay, Prosser's River, Sandfly, New Town, Compton, Impression Bay, Whale Head, &c. The remains of the following plants are very abundant, viz.:—Ferns—*Tæniopteris*, *Dancæa*, *Sagenopteris*, *Rhacophyllum*, *Neuropteris*, *Alethopteris*, *Thinnfeldia*, *Odontopteris*, *Sphenopteris*, *Trichomanides*, *Cyclopteris*; Cycads—*Podozamites*, *Pterophyllum*, *Sphenozamites*; Club Mosses—*Phyllotheca*; Conifers—*Baiera*, *Salisburia*, *Ginkgophyllum*, *Zeugophyllites*, &c.

The thickness of the series at Harefield, Fingal, has been estimated to be about 300 feet.

The Lower Division (Older Sandstone formation) consists of a series of reddish or yellow micaceous sandstones, sometimes of great thickness. The beds often overlie the uppermost members of Upper Palæozoic age, sometimes apparently conformable with them, as at Tinder Box Bay. At other times they are found alternating with the rocks of older formation at lines of fault, as at Waterworks Valley, Cascades, and Knocklofty. It is possible that there may be two distinct groups within the Lower Division, the older related more closely perhaps to the Carboniferous rocks, and the newer to the older Mesozoic period.

Remains of plants (*Vertebraria*) have been found at the Cascades, and recently the sandstones of Knocklofty and Tinder Box Bay have yielded the very perfect remains of fossil fishes (*Acrolepis Hamiltoni*, *A. Tasmanica*) of the Ganoid family, closely allied to *Myriolepis Clarkei*, occurring in New South Wales in the Hawkesbury series, which formation is deemed by New South Wales' geologists to belong to Triassic age.

In the Jerusalem Basin, near Campania, similar sandstones occur, intimately associated with the Mesozoic Coal Measures, from which a *strobilus* or cone of a species of *Lepidostrobus* (*L. Muelleri*—Johnston) was obtained. No coal seams are known to occur in these sandstones. From the occurrence of fish remains, it is not improbable that some of these sandstones may belong to the shallow shore margin of an ancient arm of the sea, although it must be admitted that the Ganoids of the period are more commonly found in the sediments of ancient freshwater lakes or inland seas.

Cainozoic.

Tertiary System.

Taken as a whole, the general features of the Tertiary system in Tasmania correspond exactly with those of the mainland of Australia.

The rock formations may be conveniently divided into four main groups, in descending order as follows:—

NEOGENE ... { Older raised terrace drifts, often overlying the plateaux of basalt.

PALÆOGENE {
1. Basaltic sheets and associated tuffs overspreading marine and lacustrine formations.
2. Lacustrine deposits of great thickness and extent, composed of sands, clays, lignites, travertines, and sometimes including auriferous and stanniferous drifts; contains the remains of a rich and varied flora.
3. Marine deposits in the northern part of Tasmania.

Palæogene Epoch (Middle and Lower Tertiary.)

Marine Formations.—The marine formations occur in isolated patches fringing the northern coast of Tasmania and the islands of Bass Strait, notably near Cape Grim, Sandy Cove—Table Cape, and Heathy Valley—Flinders' Island. The members present a somewhat uniform character, like their equivalents along the Lower Murray in Australia; and most probably they form the southern limits of the ancient Tertiary sea which occupied the greater part of the existing plains bordering the Great Australian Bight and extending over the lower levels of the southerly portions of South Australia and Victoria.

The rocks generally are composed of alternating bands of shelly limestones, calcareous sandstones, coral rag, ferruginous, gritty, and pebbly bands, replete with fossil shells, corals, foraminifers, echinoderms, sharks' teeth, &c. Certain thin zones of a hard calcareous character recur, invariably showing similar characteristic fossils, notably *Cellepora Gambierensis*, *Lovenia Forbesi*, *Waldheimia grandis*, *W. Garribaldiana*, *Rhynchonella squamosa*, &c. The sandstones are also replete with fossils in the upper beds, of which the following are typical; viz.—*Turritella Warburtonii*, *Panopea Agnewi*, *Voluta Tatei*, *V. Hannafordi*, *V. Weldii*, *V. anticingulata*, *Cypræa Archeri*, *C. platypyga*, &c. In the sandstones of the Upper or "Turritella zone" at Table Cape, land plants occur intermixed with the marine shells, among which may be noted a species of fern (*Pterris Belli*—Johnston) and *Sapotacites oligoneuris*—Ettings.) The latter form has also been found in lacustrine formations at Macquarie Harbour and Hobart. The lowermost bed at Table Cape is almost wholly composed of the remains of a large bivalve (*Crassatella oblonga*), and rests upon the upturned edges of slates belonging to Silurian age. At Cape Grim and Table Cape the whole series are capped with bosses of nepheline basalt, similar to the older basalts of Victoria, and to the plateaux of basalt abounding throughout the Island, invariably covering ancient lacustrine deposits with their lignites and leaf-beds. Nowhere along the Tasmanian coast does the marine group exceed 70 feet in thickness. From the character of the molluscs and the small percentage of species having living representatives (not exceeding 2 per cent.), it is clear that these marine beds of Tasmania must be placed at the base of the Palæogene group, *i.e.*, equivalent to the early Eocene of other countries.

Lacustrine Formations.—The more important lacustrine formations, as might be expected, are mainly found in the original valleys and

eroded basins of the earlier rocks, and generally consist of regular or irregular bands of white, grey, or ferruginous sandstones, alternating with grits; blue, white, yellow, or blackish clays; lignites; and sometimes in the neighbourhood of the older slates and crystalline rocks the ancient channels formed in them contain drifts of a richly auriferous or stanniferous character. Many of the formations are found along the course of existing rivers and watercourses in the form of raised bordering terraces. In other places, as in the Launceston Tertiary Basin, they occupy the floor of broad undulating plains, covering an area of not less than 600 square miles, and ranging from 400 to 1000 feet in thickness. Being comparatively of a loose and incoherent nature, the beds are unable to resist the eroding influences of air and water, and are therefore greatly denuded along the course of existing rivers and their tributaries. The extent of this denudation is well exemplified along the lower course of the North Esk, in the neighbourhood of Breadalbane, St. Leonard's, and Launceston. In this vicinity it is estimated that strata from 15 to 20 miles long by 1 to $1\frac{1}{2}$ miles broad have been denuded to a depth of from 50 to 500 feet. These lacustrine deposits are found throughout the Island from sea level to an altitude of 4000 feet above it; sometimes, as at Magnet Range, Mount Bischoff, Branxholm, and Ringarooma, concealing and composed of the waste of the oldest or pre-Archæan rocks, with associated stanniferous granites and porphyries; again, as at Macquarie Harbour, Beaconsfield, Lefroy, Back Creek, Tullochgorum, Mangana, and Black Boy, bordering and concealing the Silurian slates with quartz dykes and veins, from the destruction of which they have derived their auriferous drifts. At Geilston, Cornelian Bay, Glenora, Hobart, Sandy Bay, and Onetree Point they are associated with the Upper Palæozoic mudstones and intrusive greenstones; while at Launceston, Glenora, Hamilton, Ross, Jerusalem, and Longford they are mainly derived from the associated or underlying sandstones, clays, shales, and carbonaceous formations of Mesozoic age. In each case, notwithstanding the similarity or identity of fossil plants common to them all, the nature of the latter rocks shows that the mineral characteristics of each basin vary in correspondence with the rocks with which they are now immediately associated, and from the waste of which, in the main, they originally derived their sands, clays, grits, and gravels.

The clays and ferruginous sandstones are in most places replete with the remains of a luxuriant vegetation, among which the leaf impressions of forms more allied to the existing European flora are especially noticeable—such as those belonging to certain extinct species of the oak, elm, beech, laurel, willow, and elder. With these occur ancestral forms of Banksia, lomatia, eucalyptus, pittosporum, cinnamon, fig, araucaria, and other conifers.

It is of special interest to note that the ancestral forms of the existing floras of the world had already atttained a very high state of development and specialization into well-known generic types, which were then world-wide in distribution, and not, as at present, restricted to particular widely separated regions. Dr. von Ettenshausen and Baron von Mueller have recently shed great light on this important branch of Palæontology.

There is good reason for believing that the climate of the Palæogene period varied from sub-tropical to temperate between the close of the Mesozoic and the commencement of the Upper Tertiary formation or Neogene epoch.

Neogene Epoch (Upper Tertiary).

Upper Tertiary.—In Tasmania a series of deposits occur, generally resting either upon the Palæogene basalts or the lacustrine or marine beds. These deposits consist mainly of clays of various shades of colour; sands, coarse and fine; ferruginous sands; and, more conspicuously, of gravels and pebbles frequently conglomerated, among which, in many localities—as at Longford—occur a wonderful abundance of waterworn pebbles, derived from the silicified stems and branches of conifers and other fossil trees. The apparent absence of marine formations, and of the newer basalts found so common in Victoria, render it difficult to mark the upper limits of this division with any degree of satisfaction.

The absence of fossils, other than those derived from the lower rocks, also deprives the classifier of the most reliable guidance in such matters. There is little doubt, however, so far as Tasmania is concerned, that there is represented a perfect continuity of land and freshwater deposits from the Mesozoic period to the present time. As we cannot, therefore, look for any limit corresponding to a complete break in the stratigraphic series, and as no contemporaneous fossils have yet been found, the evidence as to the age of the group is limited to their mineral contents, altitude, correlation, and particularly to the earlier signs of successive planes of the erosion of existing lake-basins, ancient and recent valleys and watercourses (500 to 700 feet above existing channels) throughout the Island.

Among the more important of these deposits may be noted the gravelly and gritty accumulations forming the older terraces overlying the Archæan and Silurian formation of the western and north-eastern parts of Tasmania, and especially the older gravel drift terraces of the 600 to 700 feet level forming the upper zone of the Launceston Tertiary Basin, occupying nearly the whole of the rolling plains drained by the Tamar and its important tributaries. Fine sections of these older Neogene drifts are to be seen in the neighbourhood of Breadalbane, Perth, and Longford, where they succeed the uppermost members of the lignites, clays, leaf-beds, or basaltic sheets of the preceding Palæogene epoch. Drift formations of this period, often of great thickness, fringe the shores of Macquarie Harbour, and also are found in the neighbourhood of Port Davey, Pieman River, and Long Plains. Between the Arthur Ranges and the parallel channel of the Upper Huon similar elevated terraces, with deeply-cut cross valleys, eroded by old or existing water channels, afford evidence of the great extent of formations accumulated during the period, and of the vast amount of denudation which has taken place subsequently. The valley of the Derwent also affords abundant evidence of the same kind. Similar deposits exist in Victoria, South Australia, and New South Wales, and the same difficulties in respect of classification are there also experienced.

There is good reason for the belief that the paucity of life and the enormous denudation are in a large measure due to a growing refrigeration of the climate, and to a much greater rainfall than at present. Whether this supposed change in the direction of a colder climate became sufficiently intense within the period to produce the local ice-sheets and glaciers—of which there is evidence in valleys of the Western Highlands, notably along the deeply-cut ravines of the Mackintosh River—it is difficult to determine. It is quite conceivable, however, that simultaneously with the rising of the floor of the old Palæogene sea the adjacent land partook of a corresponding elevation, and we may therefore expect to find, as a direct consequence, a considerable change of temperature over the limits of the higher areas thus affected. In the lower levels there is no evidence of glaciation corresponding to the boulder drifts of Europe in the Pleistocene period.

Post-Tertiary, or Quaternary Period.

The nature of the Post-Tertiary rock formations and of their principal divisions may be ascertained from the following brief summary, arranged in descending order :—

Recent, or Human Period

1. Alluvium of recent rivers, lagoons, lakes, and seas, &c. ; peat ; unconsolidated blown sands along the coasts ; native shell-beds, with burnt embers and artificial flints, belonging to the now extinct Tasmanian race, along the coasts, as around the Derwent and Tamar estuaries ; talus drifts on slopes and at base of mountains and cliffs, &c.
2. Consolidated sand-dunes—*e.g.*, Helicidæ sandstone, Flinders' Island—associated with and including the raised beach terraces on Flinders', Barren, Badger, King, Kent, and along certain parts of the northern coast. The only known example of consolidated sand-dunes and recent raised sea beaches in the south of Tasmania occurs in one of the minor bays inside the heads at Blackman's Bay, on Forestier's Peninsula.

   These older sand-dunes frequently contain in abundance the fragmentary remains of marine shells, but more abundantly the well-preserved remains of land shells still found living near the shore ; viz.—*Helix Barrenensis*, *H. Furneaux-ensis*, *H. pictilis*, *H. Bassi*, *H. Simsoniana*,* &c.

   In the consolidated beds of ancient lagoons, in hollows of *Helicidæ* sandstone, occurs *Bithynella nitida*, together with *Lymnea Huonensis*, *Physa eburnea*, *P. Tasmanica*, and *P. mamillata.*

Pleistocene Period

1. Cave deposits, with bone-breccia underlying stalagmitic floor, as at Chudleigh, from which bones of the following animals† (still living) were obtained ; viz.—*Halmaturus Bennetti*, *H. Billardieri*, *Bettongia cuniculus*, *Potorous marinus*, *Phascolomys wombat*, *Phalangista vulpina*, *P. Cooki*, *P. fuliginosa.*

* Extinct.

† The remains of the extinct giant marsupials, such as *Diprotodon*, *Nototherium*, and *Thylacoleo*, found in such abundance in similar deposits in Australia, have not yet been discovered in the Pleistocene or later deposits of Tasmania.

Pleistocene Period	2. Esker drifts, as at Pig Island, Newnham, Stevenson's Bend, and Invermay, on the Tamar, consisting of irregular beds of waterworn pebbles; pebbles of silicified and ferruginous fossil pine and other woods, including fossiliferous fragments of Palæogene leaf-beds, &c. 3. Lower terrace drifts, belonging to the later pluvial period, at successive levels in the main valleys of the North Esk and other rivers.

Generally, it may be stated there is little evidence of physical disturbances of an extraordinary character during the Quaternary period, if we except the minor local oscillations of land indicated by the raised sea beaches on the islands of Bass Strait, and on other places along the northern coast line of Tasmania.

Volcanic forces seem to have been comparatively in repose since the cessation of the wide-spread eruptions of basalt and associated ejectamenta at the close of the Palæogene epoch.

The characteristic formations of gravel drifts, sand-dunes, shingle-beaches, lake-silts belong to the softer rocks; and being deposited in the lower levels, or in depressions of the harder and more ancient rocks, they do not form prominent features in the general land-sculpture. Indeed, it may generally be affirmed that the leading features—the mountain chains and ridges, the main valleys and their river courses, the great plains and plateaux—were all established prior to the deposit of the members of the Post-Tertiary age. The almost complete destruction of the marine beds of the Palæogene period—of which the fragment at Table Cape and elsewhere alone remains, and which, after having been elevated, must have formed a connecting link with the mainland of Australia—opening afresh the Bass Strait, must have been effected during the Neogene and early Pleistocene periods, and prior to the oscillation of land which produced the raised beaches found on all the existing islands of the Straits. So far as the life of the raised beaches are concerned, it has been observed that nearly all the species seem to be identical with forms now living in the adjacent seas.

Industrial Products.

Industrial Products of the Archæan System.

In the veins, elvans, lodes, or dykes traversing the rocks of Archæan age in Tasmania, or in the drifts immediately derived from their waste, are to be found many minerals and metals of great economic value, the most important of which are tin, copper, bismuth, zinc, cobalt, iron, and, not unfrequently, silver and gold.

The dense crystalline limestones of the system yield valuable marbles; the characteristic serpentines, from the beauty of their texture, may be utilised in the manufacture of ornamental vessels and other articles, and for purposes of internal decoration; while the fibrous asbestos and the fire-resisting steatite, associated with the serpentine, may be turned to many important uses in connection with gas grates, packing for steam engines, lamp wicks, furnaces, &c. As in the Archæan rocks of Tasmania the development of iron and tin is of

remarkable magnitude, it may be of advantage in this place to enter more fully into particulars connected with their characters, distribution, and probable extent.

Iron.

In Tasmania, in various localities, vast masses of hematite* and magnetite occur, associated with serpentine, as in the Archæan rocks of Canada. Although these important deposits in Tasmania are in most cases greatly concealed by vegetation or superficial drifts, the exposed portions in various localities—such as Cabbage-tree Hill, Ilfracombe, Marsden's Hill, York Rivulet, Penguin Creek, Mount Donaldson, and Mount Heemskirk—are sufficient to impress anyone with their magnitude. Mr. Charles Gould, in his Report on the River Forth and North Coast (1867), states that "brown hematite occurs at many points, either alone or in combination with manganese. It occurs abundantly at a point situate on the east side of Penguin Creek. On the higher ground the ore is pure, and associated with manganese; it juts out from the ground in great masses, which terminate westward in cliffs, presenting a face of some hundreds of feet in depth, and fronting on a tributary of Penguin Creek. Throughout the whole of this thickness there is a large proportion of iron ore, and the number of tons above the water level of iron ore of fair quality must be something far in excess even of the largest estimate made of the available iron ore similarly situated at the lode in the Blue Tier, near the Ilfracombe tramroad."

Mr. Gould only refers particularly to the more conspicuous places, for he declares that a special survey, not yet undertaken, is necessary before anything like an approximate estimate can be made of all the brown hematite in the Forth and Penguin districts. He also refers to a massive red hematite lode of the purest quality, many feet in width, occurring at Marsden's Hill.

Mr. John Brown, surveyor, also has given an interesting account of the vast extent of similar masses which appear to intrude through and spread over the serpentine rock on the property of the late R. De Little and W. Barnes, in the Ilfracombe district.

No mention is made of the presence of chromium in the deposits about Ilfracombe, which unfortunately, from its refractory nature, caused the failure in working the magnificent deposits near York Town by the Tasmanian Charcoal Iron Company. These iron deposits were graphically described, and their position carefully mapped, in a report of the country near Ilfracombe, in the West Tamar district, and printed as a Parliamentary Paper (No. 76) in the year 1886. A special paper has been prepared by Mr. T. C. Just (*see Appendix to "Official Record*, 1891"), giving a very complete account of the attempts made by English experts and manufacturers to utilise the chromic pig-iron in the manufacture of rails, steel, and steel tools.

Mr. Gould states that, unlike other iron ores abundant elsewhere throughout Tasmania, these appear to be contained in real mineral lodes, or to be derived from the contents of such, and their formation

* See Dana's definition, p. 455, Manual of Mineralogy and Lithology.

appears to have been determined by a mineral force acting in different directions. Four varieties are enumerated; viz.—

1. Earthen brown hematite.
2. Crystal brown hematite.
3. Magnetic oxide.
4. Earthy red hematite, apparently derived from 1, 2, and 3.

The deposits which present more clearly the characteristics of lodes or veins are—

1. Hematite deposit of great magnitude, situated about seven miles from the beach, along the old tramway.
2. Deposit of hematite of a similar character, though less extensive, situated at the end of the old tramway, and about a distance of ten miles from the shipping-place.

The ores are in some places compact and massive, and elsewhere crystalline, in reniform and botryoidal masses, with a fibrous and radiated structure. The ore, especially at the first-named place, frequently appears in detached masses of immense size, and probably averages in quality from 55 to 60 per cent. of iron over the greater part of the exposed deposits. A small portion of these deposits along the old Ilfracombe Tramway were worked for some time, but upon too small a scale to command success from an economic point of view.

The second group of deposits described by Mr. Gould in this neighbourhood are appropriately termed "The Ironstone Hills." Of the latter there are three deposits which stand out from the rest in magnitude and importance, although these are again more or less connected by minor deposits, or indications of lodes.

The Ironstone Hills are situated about two miles from the mouth of Anderson's Creek, and are all within the area of serpentine. The hills themselves vary from 100 to 150 feet above the level of the creek, and the country in the immediate neighbourhood is gently undulating.

Mr. Gould further states that the area occupied by the drift of magnetic oxide surrounding these extensive hematite deposits is very great; and on sinking through the superficial drifts "there occur at intervals in regular masses, seldom exceeding a few inches in thickness, a combination of magnetic oxide of iron and an asbestiform mineral which is found traversing the serpentine in short strings." The bedrock associated with these deposits appears to be serpentine. It was in these deposits that the Tasmanian Iron and Charcoal Company carried on operations for a considerable time, and expended a very large sum of money in buildings and furnace, and a properly equipped railway between the shipping-place and the deposits of ore; but, notwithstanding that the works were erected and supervised by a skilled manager from Scotland, the attempt to produce a marketable iron failed, owing to the presence of chromium in a free state—*i.e.*, not a chemical combination—which renders the metal too hard and brittle to be useful. It must be borne in mind, however, that it is only the ore on the property of the company last named which is reported to contain chromium.

The following analyses with respect to some of these iron ores were prepared for the writer by Mr. Woodgate, analyst, in the year 1880:—

Analyses of Iron Ore.

	Ilfracombe.			
	No. 1 sample.	No. 2 sample.	No. 3 sample.	1 sample.
Volatile on ignition	11·2	19·5	5·1	12·0
Alumina	2·0	15·3	5·8	2·4
Sulphur	trace only	...	...	...
Phosphorus	trace only	...	...	...
Lime, Magnesia, Alkalies	...	...	...	traces
Manganese	0·5	...	...	0·4
Chromium, Sesquioxide	trace	3·0	3·4	...
Iron Sesquioxide	79·8	...	...	70·8
Iron Peroxide	...	42·5	80·0	...
Iron Protoxide	...	1·0	...	...
Silica	6·1	18·4	4·8	13·8
Undefined	0·4	0·3	0·9	0·6
	100·0	100·0	100·0	100·0

Analyses of Metallic Iron reduced from Ilfracombe Ores.

	No. 1 sample.	No. 2 sample.	No. 3 sample.
Iron	89·0	73·3	97·2
Silica	3·2	19·9	0·9
Graphite	0·7	0·8	...
Chromium	5·1	4·6	trace
Sulphur	...	0·2	...
Undefined	2·0	1·2	1·9
	100·0	100·0	100·0

Analyses of Slags.

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
Silica	34·6	28·8	33·5	32·0	26·6
Protoxide of Iron	7·7	3·7	2·5	1·9	1·0
Alumina	24·1	36·2	26·6	32·1	32·2
Lime	27·1	24·8	29·1	26·7	33·2
Magnesia	2·6	3·2	2·1	2·2	2·0
Undefined	3·9	3·3	6·2	5·1	5·0
	100·0	100·0	100·0	100·0	100·0

Tin.

Hitherto it was generally supposed that the tin occurring in such abundance in the drifts in the vicinity of Heemskirk, Mount Bischoff, Branxholm, Blue Tier, Mount Cameron, George's Bay, and the Schoutens was almost invariably derived from quartz or eurite porphyry, which, as dykes, traverse the granite rocks, especially at points of contact with the older slates, and metamorphic rocks; but certain tin-bearing porphyries of Mount Bischoff have recently been subjected to rigid analysis by Baron von Groddeck, Director of the Royal Prussian Academy of Mines at Clausthal,* who concludes that the tin matrix examined by him at least is not, as supposed, a quartz-porphyry, but a porphyritic topaz rock. It is also interesting to find, as stated by Baron von Groddeck, that the topaz rock of Auerbach forms at the surface a huge well-like mass, which in itself contains or forms an immense lode of tin ore.

The same accomplished observer has discerned that the light greyish blue masses of minerals associated with the topaz-porphyry, sometimes exhibiting colours of green to black, and upon "slides" exhibiting also a dirty violet nucleus, enveloped by a greenish coating, are undoubtedly tourmaline, which, under the blowpipe, gives distinct reaction of boron and very little of fluorine. These revelations are most interesting; but it is now found that these observations only apply to a small portion of the tin-bearing matrix, eurite-porphyry being the prevailing matrix both at Mount Bischoff and elsewhere. It is significant, however, that stellate masses of tourmaline, of large size, form a conspicuous character in the tin-bearing rocks around Heemskirk, and also at Ben Lomond. The porphyritic topaz rock is stated by Baron von Groddeck to bear a remarkable resemblance to the former, even when examined under a powerful lens. Tin throughout other parts of the globe, as well as in Tasmania, has its home in the granites which are so intimately related with the upper members of the Archæan rocks. This is notably the case in Queensland, New South Wales, Victoria, Tasmania, Banca, Britain, Germany, and France. A reference to the sketch map contained in the author's work on the "Geology of Tasmania" shows the intimate association with the granites in Tasmania. Thus, associated with the granites of north-western Tasmania, tin exists or is worked at Mount Heemskirk, Mount Hicks, Mount Ramsay, Mount Bischoff, Interview River, Meredith Range, and Housetop. Similarly, on the north-east and east tin exists or is worked at Gladstone, Wyniford River, Moorina, Branxholm, Ellesmere, Mount Maurice, Thomas's Plains, Blue Tier, St. Helen's, Cole's Bay, South Freycinet, Schouten Island, Flinders' Island, Clarke's Island. Although tin was reported to have been found in Tasmania long prior to 1871, the reports were so vague that little importance was attached to them. The discovery, in 1871, of the valuable tin deposit at Mount Bischoff, in the north-west—probably the richest tin mine in existence—by Mr. James Smith, however, aroused general attention; for soon after tin in payable quantities was discovered in the north-east by Mr. G. R. Bell, and almost

* See translation by Mr. Thureau, read before the Royal Society of Tasmania. Paper, Royal Society, 1885.

immediately thereafter similar deposits of stream tin were discovered near St. Helen's by Messrs. Wintle and Hunt. Mr. Gould at the same time found traces of tin near Killicrankie, on Flinders' Island, and on Cape Barren Island; and, in 1875, Mr. Sprent discovered tin at Mount Heemskirk. Since that time many valuable deposits have been discovered near the points where the earlier discoveries were made.

The greater part of the tin hitherto exported from Tasmania has been derived from the waste of lodes rather than from the lodes themselves. It must, however, be stated that a considerable portion of the celebrated "Red Face" at Mount Bischoff is supposed by some experienced observers to be simply the remains of a decomposed tin lode, and not alluvial, as in the greater part of the ground worked, which undoubtedly, like other deposits throughout Tasmania, consists of re-arranged drift derived from the waste of various lodes in the immediate vicinity of the present workings.

It is also evident that the greater portion of the superficial drifts which have yielded the richest tin is of considerable antiquity—at any rate, older than the intrusive tertiary basalts which, in the Branxholm and other districts, are found to be spread out over them. Nearly ten years ago,* the author drew attention to the probability of finding tin drift beneath the extensive sheets of basalt in the neighbourhood of the granites, and it is satisfactory to find that this prediction has now proved true, as it opens out a much wider field for prospecting for this valuable metal in the tin-producing districts of the north-east, where the overlying basaltic sheets are often of considerable extent.

Hitherto lodes have been worked only to a very limited extent in the vicinity of Heemskirk, Mount Bischoff, and Ben Lomond; but in the vast extent of country round Ringarooma, Gladstone, and Branxholm, where the alluvial tin is found along the course of streams, in terraces high above the present water-course, and in deposits underlying tertiary basalts, no lodes have as yet been worked. The late Mr. C. Sprent has stated that the "champion lode" of this richly yielding tin district has not yet been discovered, and suggested that both in the north-east and north-west "there is need of systematic testing of the ground at considerable depths below the surface."

The importance of the several districts, so far as the produce of tin is concerned, is best indicated by the yield for the year 1882, taken from statistics specially compiled for that year:—

* See Proceedings Royal Society of Tasmania, 1879, p. 82.

Tin Mining, 1882.*

Locality.	Number of						Tin Ore produced.			
	Persons employed.			Mines or Claims.			Quantity.			Value.
	Alluvial.	Lode.	Total.	Alluvial.	Lode.	Total.	Alluvial.	Lode.	Total.	
							Tons.	Tons.	Tons.	£
North-Eastern Division—										
Fingal and Avoca	63	60	123	8	7	15	24·80	...	24·80	1581
George's Bay	135	...	135	30	...	30	214·00	...	214·00	13,642
Blue Tier	99	...	99	16	...	16	143·75	...	143·75	9164
Gould's Country	58	...	58	5	...	5	74·15	...	74·15	4727
Thomas's Plains	248	...	248	24	...	24	389·80	...	389·80	24,850
Blue River	68	...	68	6	...	6	27·70	...	27·70	1766
Branxholm	316	...	316	19	...	19	887·65	...	887·65	56,588
Cascades River	72	...	72	4	...	4	152·95	...	152·95	9750
Moorina	250	...	250	18	...	18	306·65	...	306·65	19,549
Mount Cameron	289	...	289	37	...	37	351·65	...	351·65	22,418
Mount Horror	8	...	8	2	...	2	1·15	...	1·15	73
Ringarooma	50	...	50	8	...	8	82·05	...	82·05	5231
Total North-Eastern Division	1656	60	1716	177	7	184	2656·30	...	2656·30	169,339
North-Western Division—										
Mount Bischoff	329	131	460	4	3	7	2648·00	261·40	2909·40	185,474
South-Eastern Division—										
Schouten Main	4	...	4	2	...	2	4·15	...	4·15	265
West and South-Western Division—										
Mount Heemskirk and Mount Agnew	33	98	131	4	12	16	21·65	4·00	26·65	1635
Grand Total	2022	289	2311	187	22	209	5330·10	265·40	5595·50	356,713

* This year is specially selected, as it shows the results of the several districts in greater detail.

The Mount Bischoff Tin Mining Company alone produces about half the total yield for Tasmania. During the working season this mine produces about 200 tons of dressed ore per month.

The number of claims worked and the number of men employed upon them for the years 1887-8-9, are summarised in the following Abstract :—

TIN Claims worked, 1888-9-90.

		1887.	1888.	1889.	1890.
Persons employed	No.	2262	1912	2227	1592
Mines or Claims	No.	311	176	82	117
Tin Ore produced — Tons	No.	5702	5245	5550	4714
Tin Ore produced — Value	£	585,808	351,473	317,144	219,868
Tin Ore produced — Value per man	£	258·97	183·82	142·41	131·83

	Per cent.
Average per cent. of assay of dressed tin ore	72·00
Average yield at smelting works	67·73
Mean assay of Mount Bischoff metallic tin	99·85

Although tin was discovered in 1871, it was not until the year 1873 that it began to appear as an article of export. Since that time it has become one of the principal articles of exports.

TIN Exported from Tasmania, 1873-90.

	Slag.	Ore.	Metal.	Value.
	Tons	Tons	Tons	£
1873	...	4	...	220
1874	...	142	...	7318
1875	...	...	366	31,325
1876	...	544	1072	99,605
1877	...	3526	2221	296,941
1878	110	1691	4146	316,311
1879	172	75	4316	303,203
1880	...	3	3951	341,736
1881	...	4	4120	375,775
1882	...	81	3589	361,046
1883	...	77	4045	376,446
1884	...	32	3675	301,423
1885	...	...	4242	357,587
1886	...	...	3776	363,364
1887	...	...	3606	407,857
1888	...	...	3775	426,326
1889	...	31	3764	345,407
1890	...	4	3210	296,761
Total	282	6414	53,874	5,008,651

The yield of metallic tin up to the present time would represent a column as high as Mount Wellington (4166 feet), and nearly 8 feet square; and its extraction would involve the displacement of at least $10\frac{1}{2}$ millions cubic feet of tin drift.

Tin Produce, 1881–1885.

000's omitted.

Exported

From	1881.	1882.	1883.	1884.	1885.	Total.
	£	£	£	£	£	£
Straits Settlements	835	1347	1310	1202	1314	6010
Australasia—						
New South Wales.....	943	1061	1060	748	697	4511
Tasmania	375	361	376	301	357	1772
Queensland.....	165	269	298	228	156	1119
Total Australasia	1483	1691	1734	1277	1210	7402
Grand Total	2318	3038	3044	2479	2524	13,412

Imported into the United Kingdom.

Shipped from	1881.	1882.	1883.	1884.	1885.	Total.
	£	£	£	£	£	£
Straits Settlements	835	1347	1310	1202	1314	6010
Australasia and other countries.....	1038	1191	1132	921	867	5151
Total	1873	2538	2442	2123	2181	11,161

The greater portion of the tin produced in Queensland and Tasmania is usually returned as the produce of New South Wales, owing to the circumstance that the former colonies ship the greater part of their tin products direct to New South Wales, from whence they are re-shipped to England along with the tin actually produced in that colony. This has the effect of exaggerating the actual yield of tin of New South Wales on the one hand, and of relatively diminishing the importance of the tin produced in Tasmania and Queensland. This is proved by the following table of imports into the United Kingdom during the year 1885:—

Imports of Tin into the United Kingdom in the Year 1885.

Shipped direct from	£	Sources of production.	£	Per cent. to total.
Straits Settlements	1,344,340			
Australasia—		Straits Settlements..	1,344,340	61·59
New South Wales.....	659,454	Australasia—		
Tasmania	24,297	New South Wales	232,205	10·63
Queensland	27,925	Tasmania	357,587	16·41
Other Australian Ports ...	34,893	Queensland	156,777	7·20
All other countries	90,982	All other countries..	90,982	4·17
Total Imports	2,181,891	Total	2,181,891	100·00

Of the 324,033 tons of metallic tin imported into the United Kingdom during the fourteen years ending 1890, Tasmania produced 58,242 tons, or 17·97 per cent. It would thus appear that the tin produce of

Tasmania represents fully one-sixth of the total value of tin imported into England. She therefore stands next to Straits Settlements as the most important tin-producing country of the world.

The mining industry in Tasmania is yet in its infancy, and it is probable that this form of export will be largely increased in the future; for it is known there are extensive fields of a promising character in the north-eastern and western parts of the Island, besides the very large extent of unexplored country occupied by rocks of Archæan age.

The following analysis of dressed tin ores from various parts of Tasmania, taken from samples assayed at one time by Mr. Latta, of the Sydney Smelting Works, Launceston, and from assays made by Mr. Woodgate, of the Mount Bischoff Tin Mining Company's Works, show their general quality :—

NORTH-EAST—			
Branxholm—Arba Company	Assay	71·5	per cent.
„ A.J.J.	„	73·6	„
Ringarooma—Weld Company, Cascade River	„	71·0	„
„ Krushka Brothers' Home	„	74·0	„
„ Black Boy Company	„	73·0	„
Mount Cameron—J.R.C. Company	„	73·5	„*
Thomas's Plains—Union Company	„	74·2	„
George's Bay—D.B. Company	„	73·0	„
„ Blue River Company	„	73·2	„
„ Pearce's, Ruby Flat	„	71·7	„
WEST—			
Mount Heemskirk—Cumberland Company	„	71·0	„
NORTH-WEST—			
Mount Bischoff Tin Mining Company (dressed)	„	72·0	„

Industrial Products of the Cambrian System.

Gold, tin, and other valuable metals often occur in the veins and lodes of the Cambrian System. Its members yield slates of unrivalled excellence. It is difficult at present to determine to what extent we owe to this system some of the valuable metals. Although the principal gold reefs in Tasmania occur in the Silurian rocks, it is probable that much of the alluvial gold has been derived from veins penetrating the Cambrian System. It is also not quite certain whether some of our tin lodes do not occur in the rocks of this age. Taken as a whole, the system throughout the world vies with the Archæan and Silurian in its yield of the more precious metals. It is true, as a rule, that the regions where the members of the system occur are rugged, barren, and inhospitable; but their richness as regards the precious metals compensate for their lack of fertility so far as agricultural and pastoral purposes are concerned. Land vegetation had not yet made its appearance, and consequently there is an almost total absence of products allied to the coal of later systems. Limestones of excellent quality, however, are very abundant, and if the classification of the Chudleigh and Ilfracombe limestones and their equivalents elsewhere be correct, the system in Tasmania is particularly rich in this useful mineral. These limestones are worked to a considerable extent at the Don and Ilfracombe.

* This ore contains gold.

The following analysis of the limestone of this system occurring at Chudleigh was kindly prepared by Mr. W. F. Ward, Government Analyst :—

ANALYSIS of Chudleigh Limestones.

Carbonate of lime	91·5
Carbonate of magnesia	1·2
Carbonate of iron	1·5
Insoluble residue (sand, &c.)	5·0
Organic matter, &c.	0·8
	100·0

Industrial Products of the Silurian System.

The rocks of the Silurian System are rich in industrial products. In some places *roofing slates* are worked, although, owing to being softer and more pervious to water, they rarely equal the slates obtained in much greater abundance in the more highly metamorphosed rocks of the Archæan and Cambrian System. It is probable that our existing Tasmanian slate quarries are in members of the Silurian rocks, and this may account for the varying character of the beds of slate where they had been worked in the vicinity of the Piper River. There is much probability that good roofing slates will yet be discovered in the Archæan rocks of western Tasmania. *Limestones* of excellent quality in Silurian rocks are of common occurrence, and in most countries such limestones are quarried and burnt for mortar, cement, and manure. *Flagstones* and *freestones* of inferior quality are also obtained. It is in *metals*, however, that the system is particularly rich. These generally occur in veins which traverse the members of the system in every direction, particularly in the vicinity of the axes of their folded and denuded anticlinals. Among these metals may be mentioned ores of *mercury*, *copper*, *lead*, *silver*, and *gold*. The latter has its home *par excellence* in the quartz dykes or "reefs" and veins of the Cambrian and Silurian Systems, although it is also obtained in more limited quantities in a similar manner in the Archæan and Devonian Systems, and in the granites and porphyries which are associated with them. As the gold industry in Australia and Tasmania is of great importance, it may be interesting to devote a small space for the purpose of describing more particularly the history and mode of occurrence of this valuable metal.

Gold.

Gold is classed with silver, platinum, iridium, and palladium as one of the noble metals, and is widely distributed throughout the world, principally in the rocks of Archæan and Cambro-Silurian age. It occurs mostly in a native state, being either pure or only slightly alloyed with one or other of the following metals, viz., silver, tellurium, copper, iron, bismuth, palladium, rhodium. Although gold often richly occurs in the drifts, conglomerates, and igneous rocks of more recent systems,—notably those of Tertiary age,—it is now very generally acknowledged that the gold so found has been derived primarily from the decomposition and waste of the auriferous quartz reefs and veins which occur chiefly in rocks of Silurian and Devonian age. It was from the more recent

auriferous superficial drifts, composed of clay, sand, and gravel, that gold was first derived by man. Reef gold-mining, according to Davies, "although the oldest mode of occurrence in nature, is the one more recently known to men, and still more recently worked with success. Excepting some Brazilian mines, and one of doubtful success in the Ural Mountains, there was, only forty years ago, scarcely a gold mine profitably worked in the solid rock."

Important Gold Discoveries in Modern Times.

The following brief summary is confined to the more important discoveries of gold in the great producing centres of modern times. For the facts relating to ex-Australian centres the author is indebted to Davies' useful work, "Metalliferous Minerals and Mining," 8vo., pp. 438; London, 1851.

Russia.—Gold was first discovered in the Ural Mountains in the year 1723, and this region still continues to rank as one of the chief sources of the world's supply of gold.

Austro-Hungary.—Gold has been mined in Hungary since the eighth century. In the existing Amalia mine, near Schemitz, gold is worked to a depth of 1800 feet from the surface.

Central America.—Gold was discovered in Nicaragua in 1850—that is, only a year prior to Hargreaves' discovery of payable gold in Australia. In Brazil gold has been known to Europeans since 1543. The more important mines, still being worked successfully, near St. John del Rey, were first systematically developed by an English Company in the year 1830.

California.—The first important discovery of gold in California was accidentally made in 1847 by Mr. Marshall, at Sutter's Mill, situated on the American Fork, near its junction with the Sacramento. The gold was first discovered as shining yellow particles in a newly formed mill-race in connection with Colonel Sutter's saw-mill.

Australia.—Mining for gold in Australia commenced in the year 1851, immediately upon the discoveries of payable gold-fields by Hargreaves at Ophir in the beginning of the same year. Prior to this date the attention of colonists was not attracted to the subject.

The earliest recorded discovery of gold, however, is that of Mr. Surveyor M'Brian. Of this discovery Mr. Harrie Wood* gives the following account:—"Mr. Surveyor M'Brian, in his field notes of the survey of the Fish River, between Tarana and O'Connell, states:—'February 15, 1823.—At 81·50 to river, and marked gum-tree. At this place I found numerous particles of gold in the sand in the hills convenient to the river.'"

In 1839, Count Strzelecki, at Boree and Wellington Caves, found gold in specks in silicate, but was induced by the Governor of the colony to refrain from giving publicity to the discovery, as it was feared such knowledge would make it impossible to preserve discipline among the soldiers and prisoners.

In 1841, the Rev. W. B. Clarke discovered gold at the head of

* Mineral Products of New South Wales, 1882, p. 22. See also the *Evening News* of Sydney for 7th August, 1875.

the Winburndale Rivulet, and in the granite westward of the Vale of Clwydd; but although, in 1843, he had mentioned the matter generally, it was regarded as a curiosity only, "and considerations of the penal condition of the Colony kept the subject quiet, as much as the general ignorance of the value of such an indication."*

In 1844 and 1846, without knowing anything of the previous discoveries, Sir R. Murchison published upon scientific grounds a prediction of the existence of gold in Australia. The following account, given by himself, is of much interest to Australians:—"Having recently returned from the auriferous Ural Mountains, I had the advantage of examining the numerous specimens collected by my friend Count Strzelecki along the eastern chain of Australia. Seeing the similarity of the rocks of those two distant countries, I could have little difficulty in drawing a parallel between them, in doing which I was naturally struck by the circumstance that none had *yet* been found in the Australian ridge, which I termed in anticipation the 'Cordillera.' Impressed with the conviction that gold would, sooner or later, be found in the great British colony, I learnt, in 1846, with satisfaction that a specimen of the ore had been discovered. I thereupon encouraged the unemployed miners of Cornwall to emigrate and dig for gold as they dug for tin in the gravel of their own district. *These notices were, as far as I know, the first printed documents relating to Australian gold.*" I have italicised the part which indicates that Sir R. Murchison was not led to make his sagacious predictions because of knowledge of what has since been revealed of earlier discoveries of gold by persons residing in the colony. The following testimony of Count Strzelecki indisputably confirms this view†:—"Nothing can give me greater pleasure and comfort at any time than to bear my humble testimony to the inductive power which you displayed on the occasion of your predictions in regard to the existence of gold in Australia; and, consequently, I can affirm now, as I did, and do whenever necessity occurs, that I never mentioned my discovery or supposed discovery of Australian gold to you prior to your papers on the subject, nor after their publication."

The effect of the discovery of gold in payable quantities in 1851 gave a wonderful impulse to the search for gold in all the colonies, and within a month of the establishment of Victoria as an independent colony it became generally known that rich deposits of gold existed within its borders.

The results of the Select Committee appointed by the Legislative Council of Victoria to consider the order of priority of claims for gold discoveries in Victoria is thus summarised in Mr. Hayter's Year Book, 1885, p. 24:—

"The Hon. W. Campbell discovered gold in March, 1850, at Clunes; concealed the fact at the time from the apprehension that its announcement might prove injurious to the squatter on whose run the discovery was made, but mentioned it in a letter to a friend on the 10th June, and afterwards on the 5th July, 1851, which friend, at Mr.

* See Rev. W. B. Clarke's evidence before a Select Committee of Leg. Council, N.S.W., Sept., 1852. *Parl. Papers.*

† Presidential Discourse, Trans. Royal Geol. Soc., 1884; also Murchison's Siluria, 1852, pp. 450–451.

Campbell's request, reported the matter to the Gold Discovery Committee on the 5th July. Mr. L. J. Mitchell and six others discovered gold in the Yarra Ranges at Anderson's Creek, which they communicated to the Gold Discovery Committee on the 5th July. Mr. James Esmond, a Californian digger, and three others obtained gold in the quartz rocks of the Pyrenees, and made the discovery public on the 5th July. Dr. George Bruhn, a German physician, found indications of gold in quartz, 'two miles from Parker's station, in April, 1851, and forwarded specimens to the Gold Committee on the 30th June. Mr. Thomas Hiscock found gold at Buninyong on the 8th August, and communicated the fact to the editor of the *Geelong Advertiser* on the 10th of the same month. This discovery led to that of the Ballarat gold-fields. Mr. C. T. Peters, a hutkeeper at Barker's Creek, and three others, found gold at Specimen Gully on the 20th July; worked secretly to the 1st September; then published the account. This led to the discovery of the numerous gold-fields about Mount Alexander."

In New Zealand, gold was discovered in 1842, less than three years from the foundation of the colony; but it was not practically worked until 1852, *i.e.*, after Hargreaves' discovery in New South Wales. Mining for gold was first commenced at Coromandel, in the district of Cape Colville Peninsula, which, at the present time, forms the chief seat of true mining operations in New Zealand,* and where reefs have been proved to a depth of over 600 feet below sea-level.

In Queensland, the opening of the gold-fields only occurred about the year 1859, or about the time when it was severed as an independent colony from New South Wales.

In Tasmania, the first payable gold was found in 1852, about the Nook, near Fingal, and about the same time it was discovered in minute particles along the Tower Hill Creek and in the vicinity of Nine Mile Springs.† The first quartz mine commenced operations at Fingal in the year 1859. In the same year gold was found in the River Forth by Mr. James Smith, and also good prospects at the Calder, a tributary of the Inglis, by Mr. Peter Lette. At Lefroy (Nine Mile Springs) reef gold was discovered by S. Richards in the year 1869. Traces of gold were also obtained in several places between Hadspen and the Town of Launceston. Gold was also discovered in the western and north-western portions of the island by Messrs. Gould, Jas. Smith, C. P. Sprent, Peter Lette, and S. B. Emmett. The first recorded returns from the Mangana gold-fields date from 1870; Waterhouse, 1871; Hellyer, Denison, and Brandy Creek, in 1872; Lisle, in 1878; Gladstone and Cam, in 1881; Minnow and River Forth, 1882; Branxholm and Mount Victoria, 1883; Mount Lyell, in 1886.

Extent of Gold Produce.

The importance of the gold industry in Australasia is best indicated by the fact that 84,039,000 ozs. of gold, valued at £335,770,000 were raised between 1851 and 1888.

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* See New Zealand Hand Book, by James Hector, M.D., C.M.G., F.R.S., 1879.

† Mr. Riva, of Launceston, is stated to have traced gold in slate rocks in the vicinity of Nine Mile Springs about the year 1849.

The proportions yielded by the various colonies are as follows:—

GOLD Produce of Australasia, from 1851 to 1889.*

000's omitted.

	1851 to 1860.	1861 to 1870.	1871 to 1880.	1881 to 1889.	Total, 1851 to 1889.	Per Cent. to Total.
Quantity.	oz.	oz.	oz.	oz.	oz.	
Victoria	23,932	15,447	10,268	6604	56,251	65·58
New Zealand	36	5507	4010	2072	11,625	13·55
New South Wales	3250	3559	2227	1015	10,051	11·72
Queensland	4	565	2989	3315	6873	8·01
Tasmania	...	4	180	381	565	·66
South Australia	...	...	85	188	273	·32
West Australia	...	...	...	136	136	·16
Total Quantity	27,222	25,082	19,759	13,711	85,774	100·00
Yearly Average	2722	2508	1976	1523	2200	
Estimated Value.*	£	£	£	£	£	
Victoria	95,728	61,788	41,072	26,416	225,004	65·59
New Zealand	144	22,028	16,040	8288	46,500	13·56
New South Wales	13,000	14,236	8908	4060	40,204	11·71
Queensland	16	2260	11,956	13,260	27,492	8·01
Tasmania	...	16	720	1524	2260	·66
South Australia	...	...	340	752	1092	·31
West Australia	...	...	...	544	544	·16
Total Value	108,888	100,328	79,036	54,844	343,096	100·00

From this analysis it appears that two-thirds of all the gold raised in Australasia have come from Victoria; the order of the colonies being as stated so far as the importance of their respective yields are concerned. The yearly average yield of gold during the last nine years is only 1,523,000 ounces, being less than three-fourths of the annual average for the last 39 years. The rapid falling off in each successive decade is very striking when compared with the first or maximum period 1851 to 1860. Especially so is this apparent within the decade not yet completed.

The value of gold raised in Australasia during 1889 is estimated at £6,920,312,† and the quantity at 1,730,078 ounces, of which nearly two-thirds were obtained from the reefs or veins in the solid rock.

GOLD PRODUCE OF THE WORLD.

The average gold produce of the world during the last fifty years is variously estimated at between 23½ and 29 millions per year.

According to Mulhall‡ the gold produce of the world for the fifty years ending 1880 amounted to £1,448,000,000, *i.e.*, equal to an average of £28,960,000 per year. The world's produce of gold for the years 1885–89 are estimated as follows:—

	Oz.	£
1885	5,110,065	20,440,260
1886	4,902,972	19,611,888
1887	4,903,813	19,615,252
1888	5,307,739	21,230,956

* Reckoned at about £4 per oz. † Year Book of Victoria, 1888-90, vol. ii, pp. 352-353.
‡ Dictionary of Statistics, p. 220.

Of the total amount for the fifty years, Mr. Mulhall estimates that the percentages yielded by the principal and other sources of supply were as follow :—

	Per cent.
Mexico and South America	31·5
United States	19·7
Australasia	17·8
Russia	12·0
Other countries	19·0
Total	100·0

The following table, showing the world's produce of gold between the years 1851 and 1885, inclusive, is based upon figures recorded in L. Almanach de Gotha, 1889, with respect to ex-Australian regions, and upon the table prepared by Mr. Hayter in respect of Australasia (Year Book 1887-8, pp. 262-3); the figures in the former being understated so far as Australasia is concerned.

GOLD Produce of the World, 1851 to 1885—Yearly Average.

000's omitted.

	1851 to 1860.	1861 to 1870.	1871 to 1880.	1881 to 1885.	1851 to 1885.	Per cent. to Total.
Quantity.	oz.	oz.	oz.	oz.	oz.	
Australasia	2722	2508	1976	1515	2275	37·1
United States of America	2667	2294	1984	1546	2123	34·7
Russia	825	870	1660	1111	1117	18·2
Mexico and South America	236	235	230	227	232	3·8
Other countries	277	281	428	527	378	6·2
	6727	6188	6278	4926	6125	100·0
Value.	£	£	£	£	£	
Australasia	10,888	10,032	7904	6060	9100	37·1
United States of America	10,668	9176	7936	6184	8492	34·7
Russia	3400	3480	6640	4444	4468	18·2
Mexico and South America	944	930	920	908	928	3·8
Other countries	1108	1124	1712	2108	1512	6·2
	26,908	24,752	25,112	19,704	24,480	100·0

From the foregoing table it would appear that the average annual produce of gold during the 35 years ending in 1885 was 6,125,000 ounces; Australasia taking up the premier position with an annual average yield of 2,275,000 ounces, or 37·1 per cent. of the whole world's supply during this period. These results for the later and smaller periods altogether reverse the old order of the important producing centres.

Mr. Hayter states that the proportion of gold derived from quartz and alluvial in Victoria for the years 1888-1889 was—

	Quartz.	Alluvial.
1888	62 per cent.	38 per cent.
1889	63 ,,	37 ,,

In Tasmania the analysis of the latest statistical records shows that between 1866 and 1890 the total quantity of gold produced from quartz and alluvial was as follows:—

	Ozs.	Value at £4 per oz. £		Per cent.
Quartz	429,514	1,718,056	or	72·97
Alluvial	159,111	636,444	or	27·03
Total	588,625	2,354,500	or	100·00

GOLD Produced in the various Mining Districts of Tasmania between 1866 and 1890.

District.	Gold.			Per cent. to Total.
	Alluvial.	Quartz.	Total.	
	oz.	oz.	oz.	
Beaconsfield	33,896	296,634	330,530	56·15
Lefroy and Back Creek	9378	85,093	94,471	16·05
Lisle	74,760	—	74,760	12·70
Fingal, Mangana, and Mathinna	9261	29,088	38,349	6·52
West Coast	26,907	3180	30,087	5·11
Mount Victoria		10,031	10,031	1·71
Denison, Golconda	535	3242	3777	·64
Other places, including Gladstone, Hellyer, Minnow, Forth, and Cam Rivers, Branxholm, &c.	4374	2246	6620	1·12
	159,111	429,514	588,625	—
Per cent. to total	27·03	72·97	—	100·0

GOLD REEFS.

Gold reefs in Tasmania have not yet been worked to any great depth. The following particulars with respect to the principal shafts sunk have been kindly supplied by Mr. F. Belstead, Secretary of Mines:—

District.	Depth of Shaft. Feet.	Direction of Reef.
Lefroy—		
New Native Youth	810	Strike east and west
West New Chum	640	,, east and west 6° S.
Mathinna—		
City of Hobart	650	,, north and south (a little to east of south.)*
New Golden Gate	350	,, ditto.
Beaconsfield—		
Tasmania	520	,, east and west, dipping south.
Lefroy	400	,, ditto.
Florence Nightingale	486	,, ditto.
Dally's United	200	,, ditto.
Moonlight	420	,, ditto.
West Tasmania	420	,, ditto.
Little Wonder	418	,, ditto.

These reefs vary from a few inches to 5 feet in width.*

* The "lode" at Mount Lyell is stated to be over 280 feet thick. It is ferruginous rather than quartziferous in character.

The reefs in New South Wales vary from a few inches to 10 feet in width, and have generally a meridional strike,—although there are exceptions showing a strike N. and S., as at Hill End, Trunkney, and Adelong; at Dalmorta, from E. 10° N. to E. 30° S.; at Grenfell, N.E.; at Temora and Copeland N.E. to E. and S.E.

With respect to Victoria, Mr. W. Nicholas, F.G.S., has furnished valuable information, which is thus summarised by Mr. Brough Smith, F.G.S.*:—

"Of eight hundred and forty-one distinct reefs observed in the Lower Silurian strata, two-thirds have an average direction of strike bearing N. 20° W., and the remaining third an average direction bearing N. 11° E.: and that of one hundred and fifty-seven reefs examined in the Upper Silurian rocks, three-fourths have an average direction along the strike of N. 34° W., and one-fourth an average direction bearing N. 27° E. In addition, about eighty-five cross-reefs have been observed, varying in the direction of the strike from N. 85° W. to N. 74° E. These are so called from their divergence at nearly right angles from the prevailing courses of the reefs. . . . The reefs which occur in the Lower are much thicker than those in the Upper Silurian rocks, and that, so far as yet observed, those reefs showing the greatest thickness have been found to be the richest and most extensively wrought in Victoria."

The shafts sunk in Victoria as a rule attain a much greater depth than in New South Wales and Tasmania. Mr. Hayter states†:—

"The ten deepest shafts in the Colony are those of the Lansell's 180 Mine, Sandhurst, 2640 feet; Magdala (New Moonlight) Company, Stawell, 2409 feet; Victory and Pandora, Sandhurst, 2300 feet; Victoria Quartz Company, Sandhurst, 2302 feet; New Chum and Victoria, Sandhurst, 2288 feet; North Old Chum Company, Sandhurst, 2210 feet; Old Chum Company, 2128 feet; Newington Company, Pleasant Creek, 1940 feet (not working); New Lansell's 222 claim, 2091 feet; Ironbark Company, 2073 feet; Watson's Central and Kentish Mine, 2061 feet. It thus appears that the greatest depth to which the earth's crust has been pierced in this Colony (Victoria) is a little over 2600 feet." "This, however, as is pointed out by the Secretary of Mines, is little more than half the depth of a bore which has been put down by the Prussian Government in search for coal at Schladebach, near Leipsic, the bore in question being the deepest in the world, viz., 4560 feet."‡

In New South Wales, shafts have not been sunk to a much greater depth than in Tasmania. At Adelong a shaft has been sunk to the depth of 874 feet. Two other shafts have reached the depth of 830 feet and 716 feet respectively.

The yield of gold from Tasmanian quartz reefs varies considerably from year to year. The yield at Beaconsfield varied from 1oz. 5dwts. 6grs. per ton in 1882, to 1oz. 4dwts. 21grs. in 1890; at Lefroy, the yield in 1882 was 6dwts. 13grs. per ton, and in 1889 the yield fell off to 14dwts. 5grs. The yield at Fingal, Mangana, and Mathinna for the year 1890 averaged 1oz. 0dwt. 22grs. The average yield from all quartz reefs in

* Report of Progress Geol. Survey of Vict., No. IV., p. 14.
† Victorian Year Book, 1889-90, p. 362.
‡ *Ibid*, 1887-8, p. 271.

Tasmania for 1889 was 16dwts. 12grs. In Victoria, it is stated that the average yield of the crushings in 1888 and 1889 was 9dwts. 17·96grs. and 9dwts. 19·19grs. respectively. In the deepest mines the yields varied from 4dwts. 17grs. to 2ozs. 6dwts. 14grs. per ton. The general average for many years is stated at 10dwts. 10·12grs.

Gold Nuggets.

In Tasmania, alluvial gold has not been worked to the same extent as in the Australian mainland, and the only nuggets of importance recorded are the following :—

(1.) Nugget found at Long Plains by Buckner, May, 1882. Weight, 9ozs.

(2.) Nugget found on the Rocky River by M'Guinty and party, March, 1883. Weight, 243ozs.

(3.) Nugget found on the Rocky River by Griffen and party, March, 1883. Weight, 143ozs.

Models of these Tasmanian nuggets are exhibited in the Tasmanian Museum, Hobart.

The largest masses of gold known have been found as nuggets in alluvial workings. The "Welcome Nugget," found in Victoria, weighed 2195 ounces, or nearly 183 pounds, and yielded £8396 10*s.* 6*d.* of sterling gold. From South Australian alluvial workings the "Blanch Barkley Nugget" was obtained, which weighed 146ozs. Besides the "Welcome Nugget," two other nuggets were found in Victoria weighing 1621 and 1105 ounces respectively.

On the 13th May, 1851, soon after the gold discovery in New South Wales by Hargreaves, there was discovered at Summer Hill Creek, N.S.W., a nugget weighing 1lb. 1oz. This is probably the first nugget of importance found in Australia. The most remarkable nuggets found in New South Wales weighed 106 and 107 lbs. Troy respectively. Of these the first was found by a native boy in July, 1851, at Meroo Creek, or Louisa Creek, River Turon; the second was found on 1st November, 1858, at Burradong, near Orange. An interesting account of the more remarkable nuggets found in New South Wales is given by Professor Liversidge.—("The Minerals of New South Wales," Sydney, 1882, pp. 66-69.)

Dana, in his Manual of Mineralogy and Lithology, p. 115, also informs us that masses of gold of considerable size have been found in North Carolina. The largest was discovered in Cabarras County; it weighed 28 pounds avoirdupois—steelyard weight equals 37 pounds Troy). . . . In Paraguay, pieces from 1 to 50 pounds weight were taken from a mass of rock which fell from one of the highest mountains. . . . The largest mass yet reported from California weighed 134lbs. 7ozs. A remarkably beautiful mass, consisting of a congeries of crystals weighing 101 ounces (value $4000) was found in 1865, seven miles from George Town, in El Dorado County. At Maisk, in the Ural Mountains, a nugget of gold was found, weight 96 lbs. It would seem, therefore, that the largest masses of gold known have been found in Australia.

Theories regarding the Origin of Gold Veins and their Mode of Occurrence.

Regarding the origin of gold found in quartz veins, there is much that is obscure or little understood. Of course nearly all authorities now agree in referring the formation of auriferous quartz veins to an aqueous origin. But suppose we admit that the gold is carried into rock fissures in solution with quartz from certain strata in the surrounding rocks, we have still to enquire how and from whence came the gold there in a finely-divided state? What is the true cause of shoots of gold? Why, for example, are auriferous quartz veins principally confined to rocks of Palæozoic age? Why should particular rocks, say diorite, appreciably affect the deposition of gold in veins passing through that rock? What is the exact thermal condition and the exact nature of the fluid which will hold silica, gold, and other metals in solution at the same time and in such a manner that they may in some form be deposited together? Many speculations have been advanced by able authorities, which, though of great value, fail to satisfy all the conditions required to arrive at a proper appreciation of the subject.

According to J. Arthur Phillips,* the formation of auriferous veins is now going on in various parts of the Pacific Coast. He states (see p. 601, Lyell's Elements of Geology)—"For example, there are fissures at the foot of the eastern declivity of the Sierra Nevada, in the State of that name, from which boiling water and steam escape, forming siliceous incrustations on the sides of the fissures. In one case, where the fissure is filled up with silica, enclosing iron and copper pyrites, gold has also been found in the veinstone." And again, with reference to California, he states:—"The auriferous quartz of these drifts is derived from veins apparently due to hydrothermal agency." Again, Sonsdadt states that "the sea water of the British coasts contains in solution, besides silver, an appreciable amount of gold, estimated by him at about one grain to a ton of water."†

Richard Müller, from experiments conducted by him, established the fact that "solvent action is more facilitated by increased pressure than by prolonged digestion," and hence probably the speculation of J. C. Crawford,‡ who supposes that mineral veins have been formed in the depths of the sea, and speculates thus:—"The filling of metallic veins, particularly gold and silver, has chiefly taken place at a depth of about 2500 fathoms or over; the precipitation may have proceeded from metals in the waters of the ocean, or in passes, or in water heated from below."§ According to Sonsdadt, iodine in sea water is the agency which keeps gold in a soluble and oxidised condition.‖ Dana¶ is of opinion "the veins of quartz which contain the gold occupy fissures through the slates and openings among the layers which must have been made when the metamorphic changes or crystallization took place. It was a period for each gold region of long-continued heat (occupying

* Phillips on "The Gold Fields of California." Proc. Roy. Soc. Lond., 1868.
† J. Sterry Hunt.
‡ Trans. New Zealand Inst., Vol. IX., pp. 560-561.
§ Geol. Record, 1877.
‖ Brough Smyth.
¶ Manual of Mineralogy and Lithology, 1879, p. 115.

probably a prolonged age), and also of vast upliftings and disturbances of the beds; for the beds are tilted at various angles, and the veins show the fractures of the layers or the separations and gapings of the tortured strata. The heat appears not to have been of the intensity required for the better crystallization of the more perfectly crystalline schists. The quartz veins could not have been filled from below by injection; they must have been filled either laterally or from above. In all such conditions of upturning and metamorphism the moisture present would have become intensely heated, and hence have great dissolving and decomposing power; it would have taken up silica with alkalies from the rocks (as happened in all Geyser regions), along with whatever other mineral substances were capable of solution or removal, and the vapour, thus laden, would have filled all open spaces, there to make depositions of the silica and other ingredients it contained. The mineral ingredients would have been derived from the rock adjoining the veins or open spaces, or from depths below through ascending vapours. By one or both of these means the quartz must have received its gold, pyrites, and ores of lead, copper, and other materials, all having been carried into the open cavities at the same time with the silica or quartz. The pyrite of the vein is usually auriferous, showing that it was crystallized under the same circumstances that attended the deposing of gold in strings, crystals, and grains, and the same is often true of the galena."

With respect to the mine waters of Australasia, Messrs. Newberry, Taylor, Skey, and others have conducted experiments for determining the presence of gold, which they had reason to believe was held in solution in the saline waters of the deep mines. Mr. Newberry states that considerable difficulty is experienced in conducting experiments on this subject, as extreme care is requisite to exclude all possible chance of the presence of finely-divided gold, which has been held in mine-waters either by itself or with pyrites, quartz, and earthy matter. With such precautions Mr. Newberry admits that a portion of the evidence had to be discarded, and the final results were not deemed to be conclusive on the point. Much investigation is yet necessary before we can arrive at final conclusions respecting the origin of gold in quartz veins.

In this place it is of interest to observe that Sir R. Murchison's settled opinion of the "downward impoverishment of gold-bearing quartz veins" has not been sustained by practical experience in Australia, where gold is now successfully worked in many places over 2000 feet below the surface, and in one place at 2409 feet, or nearly half a mile deep. His peculiar views with respect to the superficial distribution of gold, and of the downward persistence of silver, were no doubt coloured to a great extent by the idea that the sacred writer of Job indicated such a form of distribution as regards gold and silver, in the aphorism—

"Surely there is a *vein* for the silver. . . . The earth hath *dust* of gold."

His fears for the ultimate failure of the gold supply were therefore unnecessarily increased.

Silver and Silver-Lead.

(By W. F. Ward, A.R.S.M., *Government Analyst.)*

General Observations.—Silver Ores.

Silver ores are found in lodes or veins running through rocks of various nature and geological age, *e.g.*, in Saxony and Norway in the older crystalline and metamorphic rocks, gneiss, &c.; and in various parts of America largely in limestone, in which it occurs also in masses more or less filling up caverns (ore chambers) formed by the percolation of water. The world-known Comstock lode of Nevada occurs at a junction between syenite and metamorphic slate, together with other lodes in both the syenite and slate. Silver ores are also found in veins intersecting sandstone, trap, and porphyry. They are frequently associated with ores of lead, zinc, copper, and antimony, and "vein stuff," consisting of quartz, calcite or carbonate of lime, chalybite, or carbonate of iron, barytes, heavy spar or sulphate of barium, and fluorspar or fluoride of calcium.

The chief silver-producing countries are :—In Europe—Spain, Sweden and Norway, Russia, Austria, Hungary, Saxony, and England (from lead ores). In America—The United States, Mexico, Peru, Bolivia, Chili. In Australia—New South Wales.

Native Silver usually occurs in small quantity, and in association more especially with the sulphide or chloride; but masses varying in weight from 50 pounds up to 24 cwts. are reported to have been found at Kongsberg in Norway, and in Peru, Mexico, and Arizona. It is often found together with the chloride in ochreous ferruginous rocks (gossan) also associated with Native Copper. All Native Gold contains silver, usually from 5 to 20 per cent., but occasionally much more or less than those proportions.

Argentite, *Silver Glance, Sulphide of Silver*—Silver, 87·1 per cent., Sulphur, 12·9 per cent.—is one of the most abundant ores in various European and American mining districts. It is usually found in association with the sulphides of other metals, more especially with the Sulphide of Lead (Galena).

Stephanite, *Brittle Silver Ore*—Silver, 68·5 per cent., Antimony, 15·3 per cent., Sulphur, 16·2 per cent.—is abundant in Chili, Peru, Mexico, Nevada, &c. Polybasite is an allied mineral, containing about 10 per cent. of Copper and Arsenic.

Kerargyrite, *Horn Silver, Chloride of Silver*—Silver, 75·3, Chlorine, 24·7. Bromargyrite, *Bromite, Bromide of Silver*—Silver, 57·4, Bromine, 42·6. Embolite, *Chloro-Bromide of Silver*—Silver, 67·0, Chlorine, 13·2, Bromine, 19·8. The Chloride and Chloro-Bromide are very common in the mines of South America and Mexico and in some of those of the United States, also in the Broken Hill mines in New South Wales.

Other more or less important ores are :—

	Silver per cent.	Associated or combined with
Pyargyrite *Dark-red Silver Ore* *Ruby Silver*	60	Sulphide of Antimony.

	Silver per cent.	Associated or combined with
Proustite *Light-red Silver Ore*	65	Sulphide of Arsenic.
Freieslebenite	22–24	Sulphides of Lead and Antimony.
Tetrahedrite *Grey Copper Ore* *Fahlerz* *Fahlore*	30 and under	Sulphides of Copper and Antimony or Arsenic, with sometimes those of Mercury, Iron, or Zinc.

Rarer minerals are :—

	Silver per cent.	Associated or combined with
Hessite	63	Tellurium.
Sylvanite	16	Tellurium and Gold.
Naumannite	73	Selenium and Lead.
Eucairite	43	Selenium and Copper.
Stromeyerite	53	Sulphide of Copper.
Dyscrasite	78	Antimony.
Sternbergite	33	Sulphide of Iron.
Miargyrite	36	Sulphide of Antimony.
Iodyrite	46	Iodine.
Native Amalgam	26–35	Mercury.

Of these Ores the Native Silver and the Chloride and Chloro-Bromide are found chiefly in the portions of the veins more or less oxidised and decomposed by the entrance of air and water from the surface, the deeper portions of the mines yielding the undecomposed sulphides.

Silver-Lead Ores.

In addition to the foregoing, which may be classed as Ores of Silver proper, the amount of that metal obtained from Silver-Lead Ores, Sulphide of Lead (Galena), Sulphate of Lead (Anglesite), and Carbonate of Lead (Cerussite) is very large. All Galena (Lead, 86·6 per cent., Sulphur 13·4 per cent.) contains more or less Silver, and five ounces to the ton may be profitably extracted where favourable conditions for working exist.

At Przibram, in Bohemia, some of the mines are between 3000 and 4000 feet deep, the dressed ores yielding 49 per cent. of Lead and about 50 ounces of Silver per ton.

The Silver is present in the Galena as Sulphide, and usually in less proportion than one per cent., or 367 Troy ounces per ton.

Galena is widely distributed in stratified deposits or in veins in granite, gneiss, carboniferous limestone and grit, Silurian and Devonian slates, Lias limestone, Trias sandstone, eruptive Trachyte of Tertiary age, &c. It is commonly associated with Sulphides of Zinc (Blende), Iron (Pyrites), and Antimony (Stibnite).

Sulphate of Lead (Anglesite), Carbonate of Lead (Cerussite), and to a smaller extent Phosphate of Lead (Pyromorphite) are produced by the action of air, and of water together with the substances dissolved in it, on Galena ; the Silver present being usually at the same time converted into Chloride (Kerargyrite) by the Salt (Chloride of Sodium) in the water.

Anglesite.	Per Cent.	Cerussite.	Per Cent.	Pyromorphite.	Per Cent.
Oxide of Lead	73·6	Oxide of Lead	83·5	Oxide of Lead	74·1
Sulphuric Acid	26·4	Carbonic Acid	16·5	Phosphoric Acid	15·7
				Chloride of Lead	10·2
Metallic Lead	68·3	Metallic Lead	77·5	Metallic Lead	81·7

In Peru, massive Anglesite, yielding 120 ounces of silver to the ton, has been worked. The silver was present as chloride.

Cerussite, in large deposits up to 80 feet in thickness, is found near Leadville, Colorado. It lies between limestone and porphyry.

To the class of Silver-Lead Ores rather to that of Silver Ores proper, belong the celebrated Broken Hill deposits, on the borders of New South Wales and South Australia, and, practically, all the argentiferous minerals of Tasmania.

"The Silverton, or Broken Hill or Barrier Ranges district extends about 80 miles in length and 30 miles in width. The lodes occur in Silurian metamorphic micaceous schists intruded by granite, porphyry, and diorite, and traversed by quartz reefs, some of which are gold-bearing. At the surface the lodes consist chiefly of hydrous iron ore (gossan) and quartz, and contain argentiferous carbonate and sulphide of lead, chloride, chloro-bromide, and iodide of silver, with more or less copper and bismuth ores and manganese oxides, but at deeper levels, the proportion of sulphides increases. The Broken Hill lode, which is the largest yet discovered in New South Wales, varies in width from 10 to 120 feet, and extends for several miles."

Principal Sources of Silver and Lead in Tasmania.

In the Mount Zeehan district of Tasmania, Argentiferous Lead Ore has been found at intervals over some thirty square miles of country. The principal ore is Galena, and the character of the richer more or less selected portions of ore from this district is indicated by the following results of trial smeltings and assays:—

Smeltings. Ore.	Lead, per cent.	Silver, ounces per ton.
Galena, 193 tons.....	50	64
„ 5 tons.....	57	55
„ 12 tons.....	65	92
„ 15½ tons.....	70	110
„ 9½ tons.....	70	176
„ 11 tons.....	56	99
Carbonate, 32 tons.....	49	172
„ 26 tons.....	37	216
Kaolin Ore, 22 tons ...	12	201
„ 11½ tons ...	17	432
Assays.		
Assays (Provis), 18 ...	65	80 { max. 156 / min. 26
Assays (Ward), 53 ...	63	62 { max. 189 / min. 11

Anglesite, with Oxides of Iron and Manganese, and yielding up to 480 oz. of silver per ton, has also been discovered.

These ores are found in veins varying in width from a few inches up to several feet, in some places opening out to eight feet (Balstrup's, 15 feet), with about half that thickness of solid Galena. One or two of these have been traced continuously for upwards of a mile in length. The veins run through "country rock" of Silurian age, this consisting mainly of thin-bedded slates of various colours, traversed by bands of quartz, with "tuff-beds lying between the beds of Silurian slate and sandstone conformably" (Montgomery). The "vein formation" is principally clayey and siliceous Iron Oxide (altered Carbonate of Iron), with more or less Blende, Pyrites, Calcite, and Barytes.

The Mount Dundas field extends from the north-east side of the Mount Zeehan district northwards to the Pieman River. "An immense number of outcrops of iron and manganese oxides have been discovered all over this field" (Montgomery), the country rock being mainly slate and sandstone, with patches of serpentine.

The contents of the lodes, which vary in width from a foot to three chains, are for the most part completely oxidised down to the water level, and Lead present occurring as Carbonate, Sulphate, Phosphate, or, not unfrequently, as Chromate. In a few of the smaller lodes, however, Galena, associated with unaltered Carbonate of Iron, has been found, and assays of this have yielded Silver at the rate of 1800 ounces per ton.

The Heazlewood district lies between Mount Bischoff and Corinna, near the Heazlewood and White Rivers. The ore deposits are said to be "dykes intersected by strings of Galena" running through Diorite or Serpentine. These "strings" are from half an inch to four and a half inches wide, and have yielded by assay from 73 to 220 ounces of Silver to the ton of Galena.

The deposit known as "Godkin's Find" is in this district, being on the Whyte River, about 14 miles south-west of Mount Bischoff. This is not a "fissure vein," but either a "dyke lode" or a "mineralized bed" at the junction of Diorite with sandstone of Silurian age. The "formation," said to be 350 feet in width and half a mile in length, consists partly of Calcite, impregnated with Galena, and partly of Kaolin, with Oxides of Iron and Manganese, and veins of Galena, with more or less Cerussite as a product of its decomposition.

Various assays have yielded at the rate of from 100 to 800 ounces of Silver per ton of ore, while a few small selected specimens contained that metal in the proportion of 1600 to nearly 4000 ounces per ton. The Silver is present in the Cerussite as Kerargyrite and Embolite.

The Scamander deposit, near the river of that name on the East Coast, occurs in a dyke of quartz-porphyry in metamorphic schists. The Galena is found in quartz veins, together with much Iron and Arsenical Pyrites, and more or less Gold.

Assays have yielded at the rate of 20 to 200 ounces of Silver and 8 to 9 dwts. of Gold to the ton. A bulk test of 50 tons yielded about 33 ounces of Silver to the ton. The workings, at present abandoned, have reached a depth of 100 feet.

Argentiferous Galena has also been found, and more or less opened out, at Penguin, near sea level, and on Mount Claude; Fahlore from Penguin and Mount Zeehan; Sulphide of Antimony, yielding 8 to 18

ounces of Silver to the ton, from Mount Bischoff; and more or less argentiferous minerals from the Gawler River, Hampshire Hills, Arthur and Savage Rivers, Constable's Creek, &c., have also been reported.

General Remarks.

In 1859, the year of the discovery of the marvellous Western deposits, the yield of Silver for the United States was valued at 100,000 dollars, while in 1876 the Comstock lode alone yielded over 20,000,000 dollars; more than one-third of this, however, must probably be deducted for the value of the Gold found in association with the Silver ores. For the same year the estimated production for the whole of the United States was 28,000,000 dollars; for Mexico and South America, 25,000,000; and for the whole world, about 65,000,000 dollars, roughly equivalent to the same number of ounces of metal,

In Australia, the yield of New South Wales for 1869 was 753 ounces, rising in 1876 to 69,179 ounces. Nearly the whole of this, however, together with 26,356 ounces for Victoria, was separated from the gold melted at the Mints.

In 1885 the Sunny Corner Mine yielded 634,000 ounces of Silver and 6413 ounces of Gold; while the yields of the Broken Hill Proprietary Mine for the few years of its working have been—

	Ounces.
Half-year ending 30th November, 1885.....	35,605
Year ending 30th November, 1886	1,016,269
Ditto, 1887	2,103,225
Ditto, 1888	3,924,192
Ditto, 1889	6,003,299
Ditto, 1890	7,727,877
Ditto, 1891	9,947,038

The first discovery of this lode was in September, 1883. The ore averages about 40 ounces of Silver per ton, and about 17 per cent. of Lead.

The result of the greatly increased production of Silver during the last 30 years has been to lower its market value from 60½ pence per ounce in 1871 to little more than 42 pence in 1889.

The *rise* in value produced by the immense gold discoveries in California and Australia was only from 59½*d.* to 62*d.*

The World's Gold and Silver Produce, 1781–1886.

The following table of the value of the world's produce of Gold and Silver between the years 1781 and 1886, has been compiled from various sources, but chiefly from a table published by Mr. Soetbeer, quoted by Mr. Augustus Sauerbeck (*Journal of Statistical Society*, September, 1886, p. 583):—

[Value columns in millions of £ and decimals, thus 2·43 = £2,430,000.]

	Average Annual Production.		Value of Average Annual Production.		
	Gold.	Silver.	Gold.	Silver.	Total.
	Kilos.*	Kilos.*	£	£	£
1781–1800	17,790	879,060	2·43	7·74	10·17
1801–10	17,778	894,150	2·43	7·88	10·31
1811–20	11,445	540,770	1·56	4·76	6·32
1821–30	14,216	460,560	1·94	4·06	6·00
1831–40	20,289	596,450	2·77	5·25	8·02
1841–50	54,759	780,415	7·48	6·87	14·35
1851–55	197,515	886,115	27·00	7·81	34·81
1856–60	206,058	904,990	28·14	7·97	36·11
1861–65	185,123	1,101,150	25·29	9·70	34·99
1866–70	191,900	1,339,085	26·21	11·80	38·01
1871–75	170,675	1,969,425	23·31	17·35	40·66
1876–80	172,800	2,450,252	23·60	21·59	45·19
1881	157,900	2,592,639	21·56	22·84	44·40
1882	146,900	2,769,065	20·06	24·40	44·46
1883	143,940	2,895,520	19·66	25·51	45·17
1884	144,000	2,860,000	19·67	25·20	44·87
1885	159,000	2,933,000	20·38	25·84	46·22
1886	152,500	3,035,000	19·61	26·74	46·35
1887	152,500	3,095,000	19·61	27·27	46·88
1888	165,100	3,508,000	21·22	30·91	52·13

* One kilogramme equal to 2·2046 lbs. avoirdupois pure metal, or equal to 35·07 ozs. standard gold ($\frac{22}{24}$ fine) and 34·76 ozs. standard silver ($\frac{222}{240}$ fine).

Silver produced, Year 1886*, showing chief Sources of Supply.

	Millions oz.
United States	39·443
Mexico	25·522
Bolivia	12·374
Germany	7·855
Chili	5·797
Peru	3·094
Spain	1·746
France	1·689
Austria-Hungary	1·617
Australasia	1·054
Italy	·940
Japan	·799
Great Britain	·325
All other countries	1·565
Total	103·770

* Figures for Australasia taken from Mr. Hayter's Year Book, 1887–8, p. 267; all other countries from Mr. Kimball's Mint Report for 1887.

Industrial Products of the Carboniferous System.

The industrial products of the system are numerous and important, although varying in abundance in different countries. *Limestones* in Tasmania are abundant throughout the Island wherever the marine beds are largely developed—such as at Bridgewater, Cascades, Porter Hill, Blackman's Bay, Maria Island, Chudleigh, Richmond, Middle Arm, Tamar, and elsewhere. These limestones are generally fossiliferous, the genera *Eurydesma*, *Pachydomus*, *Aviculopecten*, *Spirifera*, and *Productus* being especially characteristic. Messrs. Dally at one time worked the limestones of the systems at Middle Arm on the Tamar, but the quarry has now been abandoned in favour of richer bands belonging to the Silurian system cropping from under the more recent system a little further up the creek.

Quarries have long been worked near Hobart, notably at Bridgewater; and as certain beds are well adapted for the manufacture of hydraulic cement, attempts have been made to form an industry of this kind at a point on the New Norfolk Road a mile or so beyond the Bridgewater Causeway. The following analysis, prepared for the writer by Mr. W. F. Ward, Government Analyst, gives a fair conception of the average quality of the limestones; although it must be stated that the quality of the bands is extremely variable. A similar analysis of the Cambro-Silurian limestone worked at Chudleigh and at the Don is also given for comparison :—

	Bridgewater Limestone (Carboniferous).	Chudleigh Limestone (Cambro-Silurian.)
Carbonate of lime	84·0	91·5
Carbonate of magnesia	1·0	1·2
Carbonate of iron	2·0	1·5
Insoluble residue (sand, &c.).....	12·3	5·8
Organic matter, &c. (by difference)...	0·7	0·0
	100·0	100·0

Some of the fossiliferous bands at Maria Island and elsewhere would afford figured marble of great beauty.

Marls are abundant, flanking the older greenstones, and are often utilised by farmers. *Sandstones* of fair quality are also worked in certain beds overlying the uppermost beds of the system; but some of these formations may yet prove to belong to the base of the succeeding Mesozoic period. *Coal* occurs towards the close of the system in such places as the Don, Tarleton, Latrobe, Port Cygnet, Tippagory Range, Harefield, and Adventure Bay. A seam of fair quality, of about two feet thick, is now being worked at Port Cygnet, and also near Quiet Corner, Adventure Bay; and in the Mersey and Don Basin two or three seams have been worked at different places for many years past. The coal seams of this system, although largely developed in Europe, America, and in other countries, are but poorly represented in Tasmania. In New South Wales the Coal seams of the same horizon are of much greater extent, as at Greta and Anvil Creek. In the same Colony there are also important seams (Newcastle) occurring in a formation which appears to be more recent than the Tasmanian beds of the

Mersey. In the Newcastle beds there are many fine seams of coal worked, and of such excellent quality that they are exported and largely consumed in the various Colonies of Australasia. No coal exactly equivalent to the Newcastle beds of New South Wales has, as yet, been found in Tasmania. The greater development of coal seams in this Island occurs in the members of the Mesozoic system, described hereafter.

Industrial Products of the Mesozoic Period.

The industrial products belonging to the rocks of this age in Tasmania are both varied and of great commercial value. *Sandstones* of every shade of colour, and of the finest quality, may be obtained, and these have been quarried largely for building purposes, more particularly in the neighbourhood of Hobart, Bellerive, Tea Tree, Ross, West Tamar, Spring Bay, Okehampton, &c The fine-grained white sandstones of Okehampton and Spring Bay have been held in high esteem, and have been largely used in the construction of important public buildings in Melbourne, as well as locally. The intrusive *Greenstones* of the period are largely used for foundations of buildings, and are everywhere utilized for roadmaking. The broken metal makes excellent macadamised roads. *Fireclays* of good quality exist in association with our coal seams, but they have not as yet been much utilized in the manufacture of drain-pipes, fire-bricks, and earthenware, for which many of the bands are admirably adapted.

The most characteristic and most valuable product of the period, found extensively throughout the Island, is *Coal.* The seams in some districts, notably in the Fingal Basin, are numerous, and some now worked are of considerabe thickness and of very fair quality. The Cornwell coal, from Fingal, is an excellent household coal, and similar seams in this locality are of equal value. The various coal seams of Tasmania, however, contain a considerable proportion of ash, though rich in carbon; but experience has shown us that, with some slight modification of the fire-bars of locomotives, the coal can be profitably used for steam purposes. When modifications of this kind are made, there will, no doubt, be a much larger demand for our coal. Facilities for profitably working the important coal seams in the Fingal district have now been afforded by the extension of the Government Railways.

The coal seams in different districts, as well as in the same basin, vary considerably in quality, as in other countries. In Tasmania their development can scarcely be said to have begun. When this is carried out, no doubt seams of finer quality will be discovered.

The following Analyses by experts show the varying character of the seams hitherto worked; and for purposes of comparison they are contrasted with each other and with the typical coals of many countries, as in the following table. For the analysis of the coals of other countries the author has been indebted to the comprehensive and useful tables compiled by Harrie Wood, Esq., Under Secretary for Mines, New South Wales—(Mineral Products of New South Wales: Sydney, (1882).

ANALYSES of Coal.

	Water.	Vol. Hydro-Carbon.	Fixed Carbon.	Ash.	Sulphur.	Sp. Gr.	Coke.	Analyst.
England.								
Newcastle—								
Wellington		26·93	71·11	1·08	0·88	...	72·19	J. A. Phillips
Bowden Close		29·66	67·41	2·28	0·65	...	69·99	,,
Naswell Coal Co.		37·41	55·45	5·93	1·21	1·27	61·38	,,
Original Hartley		40·34	55·15	3·07	1·44	1·15	58·22	,,
Lancashire, Caldwell, and Thomson's Higher Delf		44·39	48·25	5·95	1·41	1·27	54·20	,,
Scotland.								
Wallsend, Elgin		40·02	47·75	10·70	1·53	1·20	58·45	,,
Kilmarnock, Sherrington		49·81	48·05	1·25	0·89	1·24	49·30	,,
Borneo.								
Sarawak		48·69	47·00	3·60	0·71	...	50·60	Tookey
Sumatra.								
Ranti	5·22	39·71	53·75	0·83	0·49	...	54·48	Ward
India.								
Hyderabad	9·12	35·33	45·19	9·55	0·81	...	54·47	,,
Ditto	8·68	45·37	44·59	12·65	0·51	...	57·24	,,
China.								
Peking	0·53	15·60	77·65	5·82	0·40	...	83·47	Tookey
Ditto	1·85	34·23	49·33	13·82	0·77	...	63·15	,,
Japan.								
Takasima, in Nifon	1·50	40·38	53·50	4·00	1·08	...	57·50	Godfrey
Hizon, Shointani		55·35	11·30	31·00	2·35	...	42·30	,,
ditto, Sakakuchi, Karats		46·12	46·90	5·60	1·38	...	52·50	,,
Australasia.								
New Zealand—								
Bremmer Coal Co., Grey River	1·59	35·68	56·62	6·11	...	...	62·73	Skey
Kawakawa Colliery, Bay of Islands	4·18	42·63	50·15	3·04	...	...	...	,,
Walton's Mine, Whangarei Harbour	7·50	38·83	41·17	10·57	...	...	...	,,
West Wangui	6·70	33·98	47·55	7·55	...	...	...	,,
Inangahua, Murray Creek	7·68	29·49	54·73	1·08	...	...	...	,,
Malvern Hills, Canterbury	4·15	19·89	68·54	7·42	...	...	...	,,
Iwaka, Catlin's River	4·20	27·08	59·60	1·40	...	...	...	,,
Hydrous Coals, Lignite, and Brown Coal—								
Night Caps, Southland	21·38	45·96	29·30	3·36	...	...	...	,,
New South Wales—								
(Exported Coals.)								
Ferndale, Newcastle	2·10	36·22	57·24	3·84	0·60	1·30	61·08	Dixon
Wallsend, ditto	2·75	34·17	57·22	4·64	1·22	1·33	61·86	Liversidge
Waratah, ditto	2·21	36·70	55·82	4·15	1·12	1·30	69·97	,,
New Lambton, ditto	2·61	30·62	59·56	6·72	0·49	1·29	66·28	Dixon
Anvil Creek	1·74	41·10	47·90	7·80	1·46	1·32	55·70	Liversidge
Greta	2·25	39·21	54·41	2·72	1·41	1·29	57·13	,,
Illawarra	0·70	22·04	68·08	8·76	0·42	1·35	76·84	Dixon
Bulli	0·65	21·65	65·86	11·28	0·74	1·37	76·96	,,
(Coal chiefly used locally or not worked.)								
Lithgow Valley	1·95	34·18	52·34	10·12	1·41	1·33	62·46	Liversidge
Eskbank	2·00	33·55	49·97	12·91	1·57	1·35	63·18	,,

	Water.	Vol. Hydro-Carbon.	Fixed Carbon.	Ash.	Sulphur.	Sp. Gr.	Coke.	Analyst.
N. S. Wales—*continued.*								
Bowenfells	2·36	28·35	56·54	11·40	1·35	1·40	none	Liversidge
Katoomba	2·90	25·82	61·34	9·26	0·68	1·33	70·60	,,
Ditto	2·25	26·28	60·84	10·04	0·57	1·40	none	,,
Dymocks, Jamberoo	1·50	20·22	56·56	20·70	1·02	1·46	none	,,
Berrima	1·26	15·61	48·34	33·92	0·87	1·51	82·26	Dixon
Ditto	1·26	26·61	62·28	9·40	0·45	1·41	71·68	,,
Rex Creek, Singleton	2·80	37·00	54·00	5·60	0·51	...	59·60	Latta
Queensland—								
Thomas's Mine, Bundamba, Ipswich		29·80	59·20	11·00	...	...	70·20	Gregory
Waterstown Mine, Ipswich		25·20	62·00	12·80	...	...	74·80	,,
Tivoli, Ipswich		26·70	66·40	6·90	...	...	73·30	,,
Walloon, West Moreton		41·00	42·00	17·00	...	...	69·00	,,
Burrum Mine, Maryborough		31·50	64·00	4·50	...	...	68·50	,,
Tasmania—								
Mt. Nicholas, upper seam	6·45	36·55	48·57	8·43	...	...	...	Ward
Ditto, lower ditto	3·80	32·20	49·17	14·83	...	...	...	,,
Ditto, 8-feet seam	7·6	35·75	50·00	7·25	...	...	...	,,
Fingal	8·00	31·20	42·30	18·50	...	...	...	,,
Mount Nicholas	5·1	33·00	46·00	15·90	0·60	1·40	...	Woodgate
Port Cygnet	1·2	19·90	64·80	14·10	...	...	78·90	Lewald
Adventure Bay	3·0	14·20	69·90	12·90	...	...	82·40	,,
York Plains	4·3	10·70	59·50	25·50	...	...	...	,,
Ditto	4·1	16·40	58·40	21·10	...	...	79·50	,,
New Town	3·7	13·90	53·10	29·30	...	...	82·40	,,
Sandfly, upper seam	5·8	25·8	59·20	9·20	...	...	...	Ward
Ditto, ——?	1·85	2·85	81·40	14·00	0·80	...	...	Newbery
Ditto, upper seam	5·0	23·30	62·20	8·70	0·80	...	...	Lewald
Ditto, middle seam	5·3	16·70	63·50	14·70	0·80	...	...	,,
Ditto, lower seam	5·4	12·70	67·00	14·30	0·60	...	...	,,
Jerusalem	2·8	12·50	56·80	27·90	...	...	84·70	,,
Ditto	4·1	20·60	57·40	17·90	...	...	...	Woodgate
Gardner's Bay Coal Mining Association	2·9	15·70	63·50	17·90	...	...	81·40	Lewald
Brock's Mine, Compton	8·6	15·60	59·00	16·80	...	...	...	Ward
Mersey	12·2	37·37	40·33	5·0	5·0	...	...	
Bicheno	3·8	33·90	54·20	8·10	...	...	...	

ANALYSES of Tasmanian Coal. (Referred to in the Report of the Lieutenant-Governor, dated 18th May, 1849.)
By H. T. De La Beche.

Locality or Name of Coal.	Mean Composition of Average Samples of Coal.						Remarks.
	Carbon.	Hydrogen.	Ash.	Sulphur.	Nitrogen.	Oxygen.	
South Cape	63·33	2·89	29·96	0·98	1·27	1·57	Very large amount of ash. Carbon, poor; quality indifferent.
Mount Nicholas, Break o' Day	57·38	3·93	27·55	0·90	1·15	9·09	Quality very indifferent; carbon, poor.
Fingal	57·21	3·40	29·10	1·32	1·20	7·77	Same quality as last.
Jerusalem	68·17	3·97	19·22	1·12	1·62	5·90	Better quality, approaching Newcastle coal; ash still large.
Douglas River, East Coast	70·44	4·20	14·50	0·70	1·12	9·04	Good quality, like Newcastle, but large quantity of ash.
Tasman's Peninsula	65·53	3·34	26·40	1·03	1·89	1·81	Indifferent.
Schouten Island	64·00	3·54	27·17	0·85	0·94	3·50	Indifferent.
Adventure Bay	80·20	3·05	8·67	1·90	1·36	4·82	Best specimen like good Newcastle, though the ash is also large.
Whale's Head and South Cape	65·85	3·18	21·50	1·14	1·32	7·01	Indifferent; ash large.

N.B.—These coals all contain a large quantity of ash. The amount of sulphur is not remarkably large in any of them, but still considerable. The coals cannot be considered as first-class, but still they may be of much value in a colony so distant from the European coal fields as Van Diemen's Land.—*Museum of Practical Geology*, 26 *July*, 1850.

Industrial Products of the Tertiary System.

The industrial products of the system are numerous. Among the most important in Tasmania may be noted *tin* and *gold*, both of which, as *stream tin* and *alluvial gold*, afford a great part of our national wealth. In the "deep leads" and other Tertiary drifts in the North-eastern and Western Districts of Tasmania these valuable metals afford employment to a large body of miners, and the yearly average value of *gold* and *tin* thus derived for the last five years has equalled £500,487, and the exports for these metals amounted to £5,153,742 for the ten years ending with 1888. (See also chapter relating to Tin, under Archæan system.) The system also contains *limestones* and *marls* of excellent quality, which are used for mortar, agriculture, and other purposes. The *siliceous* and *ferruginous sands* of many of the beds are used for mortar, metal moulding, &c. The *gravels* are used for railway ballast, roads, walks, and concrete; whilst the *clays* are generally used in the manufacture of bricks, roofing-tiles, drain-pipes, drain-tiles, pottery, and the like. The *diatomaceous* or *infusorial earths* found in some places are used in Victoria for the manufacture of lithofracteur, and for polishing and other purposes. The beds of the system also contain extensive deposits of *lignite* and *retinite;* and although not utilised in Tasmania, they may yet be turned to profitable account as fuel and in the preparation of varnishes. *Clay ironstone*, in nodular masses, occurs in great abundance in the lower parts of the Launceston Tertiary Basin; and *topaz* and other precious stones are found among the stanniferous drifts of the mining districts. Altogether, the products of the system are of great industrial value.

Principal Compounds of Rocks.

Although every one of the 67 known elements of Chemistry is to be found in the mineral Kingdom—embracing all elements entering into the composition of plants and animals—the principal rock-forming minerals are not composed of any single element, but of compounds of two or more, which combine according to the proportions indicated by the ascertained *combining weights*. Hydrogen, considered to be the lightest of all the elements, is taken as the *standard* and *unit* of the others. Thus, *water*, one of the most common of the primary compounds, is indicated by the symbol H_2O, meaning that these elements combine to form water in the proportions of 2lbs. of hydrogen to 16lbs. of oxygen = 18lbs. Similarly silica, silicic acid, or pure quartz, is represented by SiO_2, meaning that these elements combine in the proportions of 1 of *silicon* to 2 of *oxygen*, or by simple combining weights, in the ratio of 28 lbs. of the former to 32lbs of the latter = 60lbs. weight of *hydrogen*. Of all the elements, *oxygen* stands pre-eminent in the readiness with which it enters immediately into combination with others; and hence we are prepared to find that it enters into the composition of nearly all the constituent compounds of the common rocks, of which the following are the principal:—

Name of Primary Compound.	Symbol.	Percentage Weight Equivalents.
Water	H_2O	11·11 : 88·89 = 100
Silica	SiO_2	46·67 : 53·33 = 100
Alumina	Al_2O_3	53·3 : 46·7 = 100
Potash	K_2O	83 : 17 = 100
Soda	Na_2O	74·2 : 25·8 = 100
Lime Carbonate	$(CaO_3)C$	44 : 56 = 100
Magnesia	MgO	60 : 40 = 100
Rock Salt	$NaCl$	39·3 : 60·7 = 100
Baryta or Barytes	BaO	89·5 : 10·5 = 100
Sulphuric Acid	$(SO_3)(H_2O)$	81·6 : 18·4 = 100
Carbonic Acid	CO_2	27·65 : 72·35 = 100
Lithia	Li_2O	46·7 : 53·3 = 100
Iron Protoxide	FeO	77·8 : 22·2 = 100
„ Sesquioxide	Fe_2O_3	70·0 : 30 = 100
Lead Sulphide	PbS	86·6 : 13·4 = 100
„ Oxide	Pb_3O_4	90·7 : 9·3 = 100
Silver Sulphide	Ag_2S	87·1 : 12·9 = 100
„ Chloride	$AgCl$	75·3 : 24·7 = 100
Copper Oxide (Cuprite)	Cu_2O	88·8 : 11·2 = 100
„ Pyrites	$CuFeS_2$	34·6 : 30·5 : 34·9 = 100
Tin Oxide	SnO_2	78·67 : 21·33 = 100

CATALOGUE of the Common and of the more important Minerals of Tasmania, showing the Principal Localities where they are known to occur.

Name.	Specific Gravity.	Relative Hardness.	Principal Compounds.	Principal Localities in Tasmania.*
1. Silica Quartz	2·6	7	Si. O.	Mount Maurice, Branxholm, Mount Heemskirk; common in auriferous and stanniferous drifts.
(Transparent Varieties.)				
2. „ Rock Crystal				Blue Tier, Weld River.
3. „ Amethyst				Blue Tier, Mount Cameron, Blue Tier.
4. „ Rose Quartz				Blue Tier, East Coast Tin Mines, Mount Cameron, George's River, St. Paul's, Mount Maurice, Flinders' Island
5. „ Cairngorm or Smoky Quartz				
6. „ False Topaz				
(Semi-transparent Varieties.)				
7. „ Chalcedony				Beaconsfield, Cornelian Bay, East Coast Tin Mines, Lisle, Mount Cameron, Meredith Range, Heazlewood River, Pieman Track.
8. „ Cornelian and Sard				Cornelian Bay, Hobart, Longford, Lake Sorell. Supply Creek, Flinders' Island.
9. „ Agate				
10. „ Onyx or Sardonyx				
11. „ Flint or Hornstone				Mount Bischoff, Mount Nelson Range, Macquarie Harbour.
(Opaque Varieties.)				
12. „ Jasper				Lake Sorell, Cornelian Bay, Supply Creek, Gould's Country (*menilite* and *hyalite*), Macquarie Harbour.
13. „ Bloodstone				
14. „ Opal, common	1·9 - 2·3	5·5 - 6·5		
15. Talc	2·5 - 2·8	1	Si. 62·8, Mg. 33·5, W. ·37	
16. Chlorite	...	2 - 2·5	Si., Mg., Al., Prot. of Iron, Water	Mount Bischoff, Mount Granville, Mount Heemskirk, Ben Lomond.
17. Serpentine	...	2·5 - 4	Si., Mg., Water	Anderson's Creek, Whyte River, Pieman River, Mount Heemskirk, Heazlewood River, Forth River, Mount Ramsay.
18. Augite (pyroxene)	...	5 - 6	Si. Lime, Mg., Prot. of Iron.	Common as a constituent of all basic eruptive rocks, like diabase and basalt.
19. Hornblende, Asbestos	3·0 - 3·5	5 - 6		Common as an essential constituent of such rocks as syenite, diorite, and hornblende schist.

20. Chrysolite or Olivine	3·4	6 - 7	Si. Mg., Prot. of Iron	A common constituent of basalt and other eruptive rocks.
21. Tourmaline	3·1	7 - 7·5	Si., Al., Mg., Bor. A., Fluo., Oxides of Iron	Occurs in slate, gneiss, granite, and in various crystalline schists.
22. Garnet	3·5 - 4·3	6·5 - 7·5	Si., Al., Lime, Iron, Mg., Mang.	Common in gneiss and schists; Mount Heemskirk, Hampshire Hills, Mount Granville, Mount Cameron, Moorina, Mount Claude.
23. Topaz	3·5	...	Si., Al., Fluor.	Mount Bischoff, Blue Tier, Cape Barren Island, Flinders' Island, George's River, Ringarooma River.
23A. Beryl	2·7	7·5 - 8	Si., Al., Glucina.	
24. Zircon or Hyacinth	4·0 - 5·0	6·7	Si., Zirconia	Common in stanniferous drifts.
25. Felspar†	2·3 - 2·8	...	Si., Al., Pot. or Soda-lime	Abundant as a constituent of various kinds of eruptive rocks, especially granites and porphyries.
26. Mica	2·7 - 3·1	2·2 - 5	Si., Al., Mg., Pot., Iron	Abundant in granite and crystalline schists.
27. Zeolites—term for a large class of Silicates	...	...	Si., Al., Lime, Soda, Pot., Water	Occurs filling cavities of basalt lava and other eruptive rocks.
28. Corundum or Sapphire	3·9 - 4·2	9	Al.	Ringarooma and George's River.
29. Spinel	3·5 - 4·0	8	Al., Mag.	Denison Gold Field, Ringarooma River, Gould's Country, Thomas' Plains, Mount Ramsay, Arthur River, Mount Horror, Boobyalla.
30. Chrysoberyl	3·5 - 3·8	8·5	Al., Glucina	Occurs in the neighbourhood of gneiss and granite in rivers.
31. Diamond	3·5	10	Carb.	One small sample reported from Arthur River (Petterd).
32. Graphite, or Black Lead	2	1 - 2	Carb.	Mount Zeehan, Anderson's Creek, Den Range.
33. Coal	...	...	Carb.	New Town, Old Beach, Sandfly, Port Cygnet, Adventure Bay, Hastings, Hamilton, Coal Hill, Richmond. Prosser's River, Spring Bay, Bicheno, Douglas River, Seymour, Harefield, Mount Nicholas, Mount Munro, Ben Lomond, Fingal, York Plains, Longford, Tarleton, Don, Jericho, Jerusalem, Schouten Island.
34. Apatite	3·2	5	Phos. Acid, Lime, Fluor	Maria Island.
35. Fluor	3·0 - 3·2	4	Flu. of Calc.	Mount Bischoff, Ben Lomond, Branxholm, Mount Granville, Mount Ramsay.

* In determining the localities for the various minerals, the author was kindly assisted by the following gentlemen, viz. :—The Hon. Jas. Smith, Leven ; Mr. W. F. Petterd, F.Z.S., Launceston; Mr. H. W. Ferd. Kayser, Waratah; Mr. W. B. Jones, Waratah; Mr. A. J. Taylor, Hobart; and Mr. W. F. Ward, Government Analyst.

† For the determination of the principal varieties, see page 347 of the author's work on the "Geology of Tasmania."

Name.	Specific Gravity.	Relative Hardness.	Principal Compounds.	Principal Localities in Tasmania.
36. Calcspar or Calcite	2·5 - 2·8	3	Carb. Acid, Lime	Bridgewater, Risdon, Maria Island, Gordon River, Chudleigh, Ilfracombe, Beaconsfield.
37. Magnesite	2·8 - 3·0	4 - 5	Carb. Acid, Mag.	York Town; occurs with serpentine and limestone.
38. Dolomite	2·8 - 2·9	3·5 - 4	Carb. Acid, Lime, Mag.	
39. Aragonite	2·9	3·5 - 4	Carc. Acid, Lime	Waratah, Bridgewater, West Tamar.
40. Rock Salt	...	...	...	
41. Sulphate of Alumina	...	...	Al.	Blue Tier; secondary product, with sulphates of nickel, zinc, iron, and magnesia (W. F. Ward).
42. Alum	...	...	Al.	Mount Bischoff, Don Coal Mines, St. Mary's, Dromedary, Ben Lomond, Chudleigh.
43. Epsom Salt	...	...	Mag.	Exton.
44. Nitre or Saltpetre	...	...		
45. Gypsum, Selenite, Alabaster, or Plaster of Paris	2·3	2	Sulph. Acid, Lime, Mag.	Mount Horror.
46. Barytes or Heavy Spar	4·3 - 4·8	2·5 - 3·5	Sulph. Acid, Baryta	Mount Lyell, Mount Heemskirk, Surrey Hills, Mount Claude.
47. Sulphur	2·1	1·5 - 2·5	Sulph.	
48. Tin Ore 49. Stream Tin	6·8 - 7·0	6·0 - 7·0	Tin, Ox.	Mount Bischoff, Mount Heemskirk, Hampshire Hills, Ringarooma, Gladstone, Branxholm, Ben Lomond, Avoca, Schouten Island, Clarke Island, Mount Munro, Flinders' Island, Mount Ramsay, George's Bay, Blue Tier, Thomas' Plains, Moorina.
50. Wood Tin	...	...	...	Storie's Creek, Ben Lomond, Gould's Country, Mount Ramsay.
51. Molybdenite	4·5 - 4·6	1·0 - 1·5	Mol., Sulph.	Heemskirk, Mount Ramsay, Mount Morris, Schouten Island, Macquarie Harbour, Branxholm, Cape Barren Island.
52. Bismuth	9·6 - 9·8	2·0 - 2·5	Bis.	Mount Heemskirk, Mount Ramsay, Belmont (Cascade River), Weldborough.
53. Antimony Sulphide	4·6 - 4·7	2	Ant., Sulph.	Mount Bischoff, Mount Zeehan, Heazlewood River, Table Cape (occurs with galena).
54. Arsenic	5·7 - 5·8	3·5	Ars.	
55. Arsenic Sulphurets	3·5	1·5	Ars., Sulph.	

56. Iron, Native	7·0 - 7·8	...	Iron	
57. „ [a]Pyrites, [b]Magnetic Iron Pyrites	4·8 - 5·1	6·0 - 6·5	Iron, Sulph.	Donaldson River, Mount Heemskirk, King River, Mount Lyell, Meredith Range, Blue Tier, Mount Bischoff, Leven, Penguin, Anderson's Creek, Ilfracombe, Circular Head, Pieman River, Mount Ramsay.
58. „ Arsenical Pyrites	6·0 - 6·3	5·5	Iron, Ars., Sulph.	
59. „ Magnetic	5·0 - 5·2	5·5 - 6·5	Iron, Ox.	
60. „ Specular, Hematite, or Micaceous	4·5 - 5·3	5·5 - 6·5	Iron, Ox.	
61. „ Red Oxide or Red Ochre	...	...	Iron, Ox., Water	Macquarie Harbour.
62. „ Brown Oxide or Brown Ochre	...	...	Iron, Ox., Water	
63. „ Titanic	4·5 - 5·3	5·0 - 6·5	Iron, Ox., Tit. Acid	
64. „ Chromic	4·4 - 4·6	5 - 5	Chrom. Iron, Mag., Al.	
65. „ Greenearth	...	...	Sil., Iron	
66. „ Carbonate	3·7 - 3·9	3	Iron, Carb. Acid	Specimen Reef, Long Plains, Mount Zeehan.
67. Manganese Ores (various)	4·5	Below 3	Ox., Mang.	Mount Zeehan, Mount Claude, Denison River, Henty River, Forth, Mount Bischoff.
68. Arsenical Nickel	7·2 - 7·8	5·0 - 5·5	Nick. Ars.	Penguin.
69. Smaltine (Tin-white Cobalt)	6·3 - 6·6	5 - 5	Cob., Ars.	Mount Heemskirk, Castle Forbes Bay, Penguin.
70. Cobalt Bloom	2·9 - 3·1	1·5 - 2·0	Cob., Ars., Ox., Water	
71. Blende, or Black Jack	4·0 - 4·1	3·5 - 4·0	Zinc, Sulph.	Mount Bischoff, Mount Zeehan, Mount Heemskirk, Mount Granville, Ringarooma, George's Bay, Blue Tier.
72. Zinc Calamine or Carbonate of Zinc	4·1 - 4·5	5	Carb. Acid, Zinc	Mount Bischoff.
73. „ Silicate or Smithsonite	3·3 - 3·5	5	Zinc, Sil.	
74. Galena	7·4 - 7·7	2·5	Lead, Sulph.	Mount Bischoff, Heazlewood, Mount Zeehan, Mount Dundas, Savage River, Penguin Creek, Mount Claude, Scamander River, Beaconsfield, River Tamar.
75. Lead Carbonate (Cerussite)	6·4 - 6·6	3·5	Lead, Carb. Acid	
76. „ Sulphate (Anglesite)	6·5	3·0	Lead, Sulph. Acid	Mount Zeehan, Heazlewood River.
77. „ Phosphate (Pyromorphite)	6·9 - 7·1	3·5 - 4·0	Lead, Phos. Acid, Chlor.	
78. Cinnabar	8·0 - 8·2	2·5	Mercury, Sulph.	Fingal or Avoca ?
79. Quicksilver or Native Mercury	...	...	Mercury	
80. Copper, Native	8·9	...	Copper	Mount Lyell, Duck River, Mainwaring Inlet, Circular Head, Mount Bischoff.
81. „ Vitreous	5·5 - 5·8	2·5 - 3·0	Cop., Sulph.	Mount Ramsay, Badger Head, Mount Maurice.
82. „ Pyrites	4·1 - 4·3	3·5 - 4·0	Cop., Iron, Sulph.	Blue Tier, Mount Heemskirk, Badger Head, Beaconsfield, Arthur, Saxon's Creek, Scamander River, George's Bay.
83. Copper, Grey	4·5 - 5·2	3·0 - 4·0	Cop., Sulph., Iron, Ars., &c.	Mount Zeehan, Penguin.

Name.	Specific Gravity.	Relative Hardness.	Principal Compounds.	Principal Localities in Tasmania.
84. „ Black Oxide	...	...	Ox., Cop.	Full Moon Co., Blue Tier.
85. „ Red Oxide	6	3·5 - 4·0	Ox., Cop.	Meredith Range.
86. „ [a]Blue and [b]Green Carbonate (Malachite[a], Chessylite[b])	3·7 - 4·0	3·5 - 4·0	Ox., Carb. Acid, Water	Mount Bischoff, Mainwaring Inlet, Junction of Arthur with Hellyer River, Mount Zeehan, Campbell Range, Mount Maurice.
87. Platinum	17·0 - 19·0	...	Platinum	Pieman River Gold Fields, St. Paul's River ?
88. Gold	15·0 - 19·0	2·5 - 3·0	Gold	Creeks from Cam to Port Davey, Mount Lyell, Macquarie Harbour, Pieman, King, and Whyte Rivers, Port Cygnet, Mangana, Mathinna, Mount Victoria, Lefroy, Back Creek, Lisle, Beaconsfield, Scamander River, Hampshire Hills, &c.
89. Silver	10·5	2·5 - 3·0	Silver	Mount Zeehan, Penguin, Mount Claude, Hampshire Hills, Scamander River, Constable's Creek, Arthur River, Mount Dundas, Savage River.
90. „ Sulphide	7·2	2·0 - 2·5	Silver, Sulph.	Scamander River ? Mount Bischoff, Heazlewood.
91. „ Antimonial and Arsenical Ores	5·0 - 6·0	2·0 - 3·0	Sil., Ars., Ant.	Penguin.
92. „ Horn	...	1·0 - 1·5	Sil., Chlorine	Heazlewood, Mount Dundas
93. Lead and Antimony Sulphides (Boulangerite)	2·5 - 3	5·75 - 6·0	Lead, Sulph., Ant.	Mount Zeehan, Mount Bischoff, Mount Ramsay, Penguin, Scamander River, Mount Dundas.
94. Selenides of Mercury (Onofrite)	7·1 - 7·37	2·5	Sel. Mer.	
95. „ Lead (Clausthallite)	7·6 - 8·8	2·5 - 3	Sel. Lead	
96. „ Silver (Naumannite)	8	...	Sel. Sil.	
97. „ Copper (Berzelianite)	7 - 7·5	...	Sel. Cop.	
98. Millerite, Sulphide of Nickel	...	3·0 - 5·0	Nick. Sulph.	Blue Tier, Penguin.
99. Rutile	4·2 - 4·3	6·0 - 6·5	Titanium, Ox.	Forth, Macquarie Harbour, Leven River, Savage River.
100. Sphene	3·2 - 3·6	5·0 - 5·5	Tit. Acid, Sil., Lime	
101. Wolfram	7·0 - 8·0	5·5	Tung. Acid, Iron, Mang.	Mount Bischoff, Blue Tier, Stony Creek, Ben Lomond, Pieman River, Ringarooma.
102. Pitchblende	6·4 - 6·7	5·5	Uranium, Ox.	
103. Osmo-Iridium	19·5 - 21·1	6·7	Os.-Ir., Iron, Rhod.	Badger River, Pieman River, Mount Granville.

CHAPTER VI.

Flora and Vegetable Products.

FLORA.

TASMANIA is famous for the extreme variety and beauty of its vegetation. No part of its natural history has received so much attention, and, mainly owing to the labours of such eminent botanists as Sir J. D. Hooker (Flora of Tasmania), W. Bentham, and Sir Ferd. von Mueller (Flora Australiensis), its history is comparatively better known than that of any other region of Australasia. Apart from its rich luxuriance in mosses, liver-worts, fungi, lichens, sea-weeds, &c., its flora comprises about 100 orders, 478 genera, and 1100 species, of which the following is a synopsis:—

Order.	Genera.	Species.	Types.
Dilleneæ	1	9	Hibbertia
Rutaceæ	5	18	Hickory, Boronia
Magnoliæ	1	1	Pepper Tree
Rhamnæ	5	15	Bastard Dogwood
Pittosporeæ	4	6	Box Tree
Tiliaceæ	2	2	Aristotelia
Leguminosæ	24	69	Coral Pea, Blackwood, Wattle.
Sapindeæ	1	2	Dodoneæ
Myrtaceæ	8	27	Blue Gum, Peppermint
Saxifrageæ	5	5	Horizontal Scrub, Native Laurel
Umbelliferæ	14	23	Prick-foot
Rubiaceæ	6	15	Coffee Plant
Compositæ	45	125	Musk Tree, Daisy
Stylideæ	4	6	Trigger Plant
Epacrideæ	16	60	Grass Tree, Heath
Ericeæ	2	4	Wax Cluster
Labiatæ	10	14	Native Lilac
Scrophulariaceæ	10	24	Eye-bright
Oleaceæ	1	1	Ironwood
Chenopodeæ	6	13	Salt Bush, Botany Bay Greens
Monimiaceæ	1	1	Sassafras
Lauraceæ	1	3	Native Mistletoe
Thymeleæ	2	18	Cotton Shrub
Corylaceæ	1	2	Beech or Myrtle
Proteaceæ	12	22	Honeysuckle, Waratah
Santaleæ	3	6	Cherry Tree
Casuarineæ	1	4	She-oak
Coniferæ	8	11	Huon Pine, Pencil Cedar
Orchideæ	22	66	Native Hyacinth, Spider Orchis
Liliaceæ	15	24	Grass Tree, Solomon's Seal
Junceæ	5	16	Rush, Sagg.
Restiaceæ	5	12	Restio.
Cyperaceæ	15	55	Cutting-grass
Gramineæ	34	67	Kangaroo-grass
Polypodeæ	25	51	Tree Fern
Lycopodeæ	4	10	Club Moss
Marsileæ	3	6	Pilularia
Other Orders	151	288	
Total	478	1100	

Natural Forests and Industrial Products.

Although the herbs, shrubs, and brushwoods have great interest for the naturalist, and although the foliage of our tree-fern gullies and the flowers and berries of the mountains and plains are remarkable for their beauty, it is the tall timber trees, spreading over the whole country—from the water-edge at sea-level to an altitude of 4000 feet—which give the chief character to the topography of the island. Tasmania is peculiarly a forest country. Trees of great dimensions tower over and eclipse all the lesser undergrowths on plains, valleys, hills, and mountain slopes. Of the 16,778,000 acres comprising the total area, there are only 75,500 acres occupied by lakes, and 488,354 acres of cultivated land only partially cleared of its timber trees. With the exception of minor areas on the tops of mountains or among the barren uplands of the Western Highlands, the whole of the rest of the country is occupied with an almost continuous virgin forest, mainly composed of the variable forms of Eucalypti (Gum Trees), one noted example of which, the Tolosa Blue Gum, has been recorded as measuring a height of 330 feet. Many of these trees have stems measuring 150 feet high without a branch, with a girth of about 40 feet towards the base; and it is also recorded that a Blue Gum at Southport (*Eucalyptus globulus*)—the prevailing tree towards the south of the island—"contained as much timber as would fully suffice to build a ninety-ton schooner." (Mueller.)

With such a wealth of forest trees, Tasmania's sources of timber supply must be infinitely great, and, in the near future, must be of great industrial value. At present our very abundance is the cause of much prodigality and waste. The timber trees in large areas around settlement are mostly destroyed by fire when clearing the land.

The difficulties of transit, the ignorance of their economic value in distant markets, the plethora of local supply, and the necessity for clearing the land in the most convenient way, all tend to produce waste and improvidence in respect of timber products which might soon become a great source of national wealth. The necessity for the better conservation of our natural forests has latterly commanded the attention of the local government, and a department has been created for the purpose of establishing conserved areas and for regulating all matters connected with the cutting of timber on Crown lands. A brief description of the more important timbers of industrial value is given hereafter.

TIMBER TREES.

Hardwoods.

Blue Gum (*Eucalyptus globulus*—Lab.)—The "Blue Gum" has its home principally in the southern parts of Tasmania, where it attains great dimensions. Many of these trees exceed a height of 280 feet, with a girth of from 40 to 50 feet; and a noted example is mentioned whose height was estimated at 330 feet. Records of heights over 300 feet, however, require verification; although it is not improbable that single trees in favourable localities may have attained the greatest height mentioned. "Lady Franklin's Tree," near Hobart, is stated to have a circumference of 107 feet at a height of 4 feet from the ground.

In any case, these trees commonly attain gigantic dimensions, and

being so numerous, they may well share comparison with the notable examples of Sequoia of Southern California.

Sir Ferd. von Mueller has studied this now famous tree in all its relations, and he states that within the last 20 years not even the royal oak of England has such an extensive literature devoted to it as to our Blue Gum; and of these works he enumerates no less than 75, which of themselves would fill a large volume. The same authority states "that the timber is of a rather pale colour, hard, heavy, strong, and durable, more twisted than that of *E. obliqua*, *E. amygdalina*, and many other fissile kinds, but not so interlocked as that of *E. rostrata*, *E. melliodora*, and most of the species termed Box-trees. Its specific gravity varies from ·698 to 1·108. In transverse strain its strength is about equal to English Oak. Its durability is greater than the so-called White Gum trees and all Stringy-bark trees. In house-building it is one of our best timbers for joists, studs, rafters, or any other heavy scantlings, and is very largely used for this purpose. The Australian Lloyd's classify the Blue Gum tree as follows:—'For floors of ships, first and second futtocks, main and rider keelson, beams, and hooks, 10 years; for third futtocks and top timbers, stem and stern posts, transoms, knightheads, hawse timbers, aprons, deadwood, knees, rudder, windlass, timber and bilge-strakes and ceiling between, clamps, stringers, shelf-pieces and lower deck waterways, 9 years; for light water-marks to wales, top-sides, sheer strakes, upper deck-waterways, spirkiting and plank sheers, 8 years; keel to first futtock heads, thence to light water-mark, 12 years (*i.e.*, first-class range).' The wood of the Blue Gum tree is also extensively used by carriage builders and manufacturers of implements; for instance, for poles and shafts of light as well as heavy vehicles, for under-carriage work, swivel-trees, spokes and rims, axle beds, plough-bars, handles of axes, picks, shovels, forks, hoes, and hammers, and all similar purposes." It is further used for telegraph poles, and for bridges, jetties, and railway sleepers, &c.

The classification of underwriters, however, is arbitrary,* and must not be taken as an indication of the true value or comparative durability or life of the Blue Gum timber. A large amount of information regarding its value for various purposes has been collected by Mr. Elwood Cooper in his work 'Forest Culture and Eucalyptus Trees," stated to be the only complete and reliable work on the Eucalypti published in the United States. The following extracts therefrom are therefore of more than ordinary value:—

Opinions of various Authorities.

Labillardière.—In his journal, dated 12th May, 1792, Labillardière writes:—"The wood is suited to naval construction, and is durable, but neither so light nor so elastic as Pine."

* This is confirmed by letters written in 1851 to the late Dr. Milligan by W. W. Saunders, of Lloyd's, London, who aided Dr. Lindley and Dr. Royle, &c. in examining and reporting upon the timbers shown at the Great Exhibition held in London in the year 1851. He writes:—"Ships built in colonies I think very well of as regards timber, feeling eventually some of the best woods will prove worthy of being admitted into the ships of the first grade. At present the better class woods are only admitted to stand A1 for 10 years, and are placed *for want of experience in them* on the footing of hardwood from Brazil and elsewhere."

M. Trottier, a colonist and planter, writes :—" The trunk can supply immense planks. One was sent to the London Exhibition in 1862 measuring 75 feet in length and about 10 feet in width. Australia desired to send a plank one hundred and sixty-five feet long, but no ship could be found to transport it. The English navy begins to appreciate the wood for its solidity, durability, and tenacity. The best whaleships that furrow the South American seas are those of Hobart Town : the keels of which are made of *Eucalyptus globulus*. . . . Compact and tenacious, the wood, owing to the presence of resinous materials, possesses a sort of incorruptibility which allows it to remain a long time in contact with saltwater. It is equally durable in the ground as is the Oak, and can be employed with advantage for sleepers for railroads. The durability of the wood makes it valuable for the keels of vessels, for the construction of bridges, piers, and viaducts."

Baron Ferd. von Mueller—" Shipbuilders get keels of this timber one hundred and twenty feet long ; besides this, they use it extensively for planking and many other parts of the ship, and it is considered to be generally superior to American Rock Elm. A test of strength has been made between some Blue gum, English Oak, and Indian Teak. The Blue Gum carried fourteen pounds weight more than the Oak, and seventeen and one-fourth pounds more weight than Teak, upon the square inch."

Mr. T. W. Herkimer.—This gentleman (who lived ten years in Australia and Tasmania, engaged in mining, wood-cutting, lumbering, constructing Telegraph lines, &c.) writes :—"While I was in Tasmania there was a test made as to the value for war purposes. It was found that a cannon-ball would pierce the planks, cutting a round hole, and passing through without splitting the planks. The experiments were so satisfactory that the wood was pronounced as good as English Oak. . . . The timber dealers in Melbourne do not make a difference in contracting for a cargo of lumber of colonial woods. *It is generally expected that it will be mixed.** Wheelwrights always select the Blue Gum, it being considered much better for wagon-making than most other varieties ; it is stronger and more durable, and quite equal to the Hickory of this country (America). It is used for axle-trees, hubs, spokes, and all parts of the running gear. The Blue Gum is much heavier and tougher, and will last longer than any of the others ; *in fact, it will last a life-time if taken from large trees.** The wood resembles the Rock Elm of the Eastern States (of America)."

J. Higginbotham.—" The fence-posts (for Victoria Railways) will be of Red Gum, Iron Bark, Blue Gum, or Box, and the Rails of Stringy Bark. I think that a fence of these materials *will last for eighteen years.*"

Experiments on the strength of Blue Gum Timber, instituted by Mr. James Mitchell, gave the following results, as tested in pieces 7 feet long by 2 inches square—

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* The mistakes made in selecting true specimens, or the selection of timber for tests made from young trees or unseasoned examples, may be the chief causes of marked differences shown in trials of strength, durability, &c. made at different times and places by different persons.

	Imperfectly seasoned examples.	Well seasoned examples.
Deflection—Weight and deflection while the elasticity remained perfect—		
Weight ..... lbs.	294 to 503	472 to 518
Deflection .... inches	1·37 to 1·5	1·37 to 1·75
At crisis of breaking ..... „	5· to 7·5	4· to 7·5
Total weight to break each piece ... lbs.	819 to 867	1029 to 1330
Value of strength $S = \frac{lw}{4bd^2}$	2149 to 2276	2701 to 3491
Tensile strength = direct cohesion per square inch	...	22,064 to 31,088
Specific gravity	1·034 to 1·076	·942 to 1·089

Mr. Laslett also found vertical or crushing strain on cubes of 2 inches, as follows :—

Vertical strain on 2 in. cubes, from	10·50 tons to 13·62 tons
Ditto mean per 1 square inch	3·078 tons

In a further series of experiments instituted by Sir Ferd. von Müeller and J. G. Luehmann on pieces of Blue Gum 2 feet long and 2 inches square, seasoned for nine months, the following results were obtained as regards transverse strength :—

Deflection—With the apparatus weighing 780 lbs. ..... inches	0·5 to 1·6
After weight was removed ..... „	*Nil* to ·04
At the crisis of breaking ..... „	·58 to ·75
Total weight to break each piece ..... lbs.	2280 to 3752
Strength = $\frac{\text{length} \times \text{weight}}{4 \times \text{breadth} \times \text{depth}^2}$ multiplied by itself	1689 to 2814
Specific gravity	·845 to 1·096

Further experiments upon various indigenous timber-trees of Tasmania and Australia were made by Sir Ferd. von Müeller and J. B. Luehmann under the same conditions as the last-mentioned, which enable comparisons to be made with woods of various countries. To these are added quotations of Strength (S) from Chambers' Mathematics, and Molesworth's Pocket Book of Engineering :—

TIMBER-TREES of Tasmania and Australia compared with those of other Countries.

	Deflection.		Breaking Weights.	Strength, $S = \frac{L\,W}{4BD^2}$	Specific Gravity.	
	Pressure, 780 lbs.	Breaking Crisis.			Air-dried.	Absolutely dried.
* Blue Gum (*Eucalyptus globulus*)	·16	·75	3752	3491	1·096	...
	·05	·58	2280	2149	·845	...
* Stringy-bark (*E. obliqua*)	...	...	...	3602	·81–·100	...
Lignum vitæ	...	...	...	3440	1·333	...
Satin Wood	...	...	...	3200	·960	...
* Iron Bark (*Eucalyptus leucoxylon*)	·03	·63	4192	3144	1·028	·908
	·03	·60	3977	2983	1·061	·913
Satin Wood	...	...	...	3200	·960	...
Iron Wood	...	...	...	3000	1·150	...
Ash	...	...	...	3000	·760	...
	...	...	...	2000	·690	...
† Sydney Iron Bark (*Eucalyptus siderophloia*)	·02	·63	3873	2905	1·075	·936
	·02	·56	3752	2814	1·129	·953
Oak, African	...	...	...	2523	·988	...
† Red Box (*Eucalyptus polyanthema*)	·10	·56	3215	2411	1·248	1·031
	·08	·58	3145	2359	1·214	1·010
Box	...	...	...	2445	1·280	...
Teak	...	...	...	2460	·740	...
	...	...	...	2110	·860	...
Oak, English	...	...	...	2260	·777	...
	...	...	...	1200	·934	...
† Yellow Box (*Eucalyptus melliodora*)	·06	·58	2903	2177	1·112	·947
	·08	·63	2781	2086	1·040	·846
Ebony	...	...	...	2100	1·187	...
† Pale Red Gum (*Eucalyptus rostrata*)	·08	·52	2781	2086	1·008	·843
	·07	·48	2712	2034	·940	·790
Birch	...	...	..	1930	·711	...
	...	...	...	1900	·730	...
Elm, Canadian	...	...	...	1920	·725	...
Mahogany, Honduras	...	...	..	1910	·560	...
Acacia	...	...	...	1867	·710	...
Jackwood	...	...	...	1830	·670	...
†Stringy Bark Gum (*Eucalyptus macrorrhyncha*)	·17	·62	2412	1809	·952	·800
	·17	·60	2384	1788	1·060	·901
*(Var.) Swamp Gum (*Eucalyptus Gunnii*)	·12	·75	2327	1745	·950	·802
	·14	·75	2268	1701	1·021	·842
* Apple-scented Gum (*Eucalyptus Stuartiana*)	·12	·54	2425	1819	1·010	·850
	·14	·56	2170	1627	1·001	·834
* White Gum (*Eucalyptus viminalis*)	·12	·65	2384	1788	·954	·797
	·12	·70	2195	1646	·916	·761
Oak, Canadian	...	...	...	1760	·850	...
Chestnut	...	...	...	1770	·660	...
* Blackwood (*Acacia melanoxylon*)	·08	·50	2296	1722	·616	...
	·08	·54	2261	1696	·615	...
Mahogany, Nassau	...	...	...	1719	·668	...
Oak, American Red	...	...	...	1680	·850	...
†Bastard Box Gum (*Eucalyptus goniocalyx*)	·16	·50	2209	1658	·948	·807
	·20	·58	2050	1537	·937	·798
Larch, English	...	...	...	1660	·556	...
	...	...	..	1330	·543	...
*Peppermint Gum (*Eucalyptus amygdalina*)	·12	·65	2195	1646	1·045	·978
	·12	·70	2132	1599	1·076	·867

* Tasmanian Trees. † Australian Trees.

	Deflection.		Breaking Weight.	Strength, $S = \frac{L W}{4BD^2}$	Specific Gravity.	
	Pressure, 780 lbs.	Breaking Crisis.			Air-dried.	Absolutely dried.
Maple	...	...	...	1694	·675	...
Deal, Christiana	...	...	...	1562	·689	...
†Kauri *(Dammara Australis)*	·08	·42	2053	1540	·600	·518
	·08	·42	1967	1475	·613	·531
*Messmate Gum *(Eucalyptus obliqua)*	·12	·50	2053	1540	1·045	·867
	·14	·48	1776	1332	·935	·783
Red Pine	...	...	...	1530	·657	...
	...	...	...	1200	·576	...
Fir Spruce	...	...	...	1490	·512	...
Cedar, West Indian	...	...	...	1443	·748	...
Pine, Dantzic	...	...	...	1426	·649	...
Baltic Deal *(Pinus silvestris)*	·17	·70	1811	1358	·541	·458
	·21	·48	1398	1048	·399	·346
Pine, Riga	...	...	...	1383	·634	...
Pine, Memel	...	...	...	1348	·550	...
Cedar, Lebanon	...	...	...	1300	·486	...
Elm, English	...	...	...	1100	·579	...
	...	...	...	782	·553	...
Cedar, American	...	...	...	766	·554	...

From the preceding analytical tables it will be seen that the Tasmanian Blue Gum stands pre-eminent among the woods of all countries in regard to strength; bearing nearly five times the strain of the lowest on the list—viz., American Cedar.

There is every reason to believe, therefore, that it will be largely in demand when its valuable properties become better known in European markets.

Besides its timber it has many other valuable properties. Sir Ferd. von Mueller states: "Our Blue Gum has, on the whole, exercised already on regions of the warm temperate zone (where they have been introduced) a greater influence—scenic, industrial, and hygienic—than any other single species of arboreous vegetation ever reared anywhere. Thus (as in Algeria) it has transformed the features of wide formerly treeless landscapes, has already (from its quick growth) afforded many places timber and fuel for rapidly increasing settlement, and rendered also many a miasmatic locality premanently habitable. . . . To bacteria and other micro-organisms Eucalyptus oil proves as fatal as Phenic acid. . . . Flesh of any kind is as well preserved by Eucalyptus oil as by Creosote, while beef sprinkled with it will dry hard without putrefaction. Various parts of the wood yields from 1 lb. 5oz. to 4 lbs. 12 oz. of pure potash, while valuable oils (Eucalyptus) are yielded by the leaves and other parts, which are now largely in use by pharmacopolists generally." For further particulars regarding the various properties of this famous tree, see Sir Ferd. von Mueller's "Eucalyptographia," [Melbourne, 1884].

Peppermint Tree *(Eucalyptus amygdalina*—Lab.)—This magnificent tree has a wide range, as it is found along the southern and

eastern humid districts of Victoria and New South Wales, as well as in Tasmania. It varies greatly with altitude, climate, and soil, and is found at all heights up to 4000 feet elevation. In the poorer lands, open country, or on dry ridges or plateaus, the trees, though tall, are not remarkably so; but in the deep-wooded gullies and in the moist ravines of mountains, it attains such remarkable dimensions that it has obtained the distinction of "The Giant Eucalypt" of Australia.

The giant form in Tasmania is known as the "Swamp Gum Tree"; the name "Peppermint Tree" is locally restricted to the smaller varieties on open plains and ridges. The following account, given by the Rev. T. J. Ewing, of trees growing near a small stream running into North-West Bay River, in 1849, gives some notion of the remarkable dimensions attained by the Swamp Gum in moist situations:—"In addition to the giants below, there are . . . within a mile at least 100 trees of 40 feet in circumference. One, about forty yards from the biggest, was 60 feet at four feet from the ground, and at a hundred thirty must have been fully 40 feet in circumference; it was without buttresses, but went up one solid massive column, without the least symptom of decay. A Silver Wattle *(Acacia dealbata)* was 120 feet high and six feet round. The largest (Swamp Gum) we measured was, at three feet from the ground, 102 feet in circumference, and at the ground 130 feet. We had no means of estimating its height, so dense was the neighbouring forest—above which, however, it towered in majestic grandeur. This noble Swamp Gum is still growing—it should be held sacred as the *largest* growing tree. . . . The second tree, also a Swamp Gum, is prostrate. It measures from the root to the first branch 220 feet, and the top measured 64—in all 284 feet, without including the small top decayed and gone, which would carry it much beyond 300 feet. The circumference at the base is 36 feet, and at the first branch 12 feet, giving an average of 24 feet. This would allow for the solid bole 10,120 feet of timber, without including any of the branches. Altogether, as green timber it must have weighed more than 400 tons. The Oak that gave the most timber was the Glenonos oak, in Monmouthshire, which, with its branches, turned out 2426, but the body alone only 450 feet."

In Victoria, on the Black Spur, Upper Yarra, and Upper Goulburn River, several trees measured by Sir Ferd. von Mueller gave approximately heights of 400 feet. Mr. Howitt also obtained, in Gippsland, measurement of giant forms up to 410 feet. Still greater heights are recorded; but enough has been stated to prove that the species must be ranked with the Sequoias of California and the locally associated Blue Gum of Tasmania as among the great giants of the vegetable creation.

In regard to its qualities and uses as timber, Sir Ferd. von Mueller states that it is useful for many kinds of carpenter's work; in drying it does not twist; when straight stems are produced in forest-valleys the wood splits better into palings than even that of our Stringy-bark Tree *(E. obliqua)*, and this with such facility that in some particular instances a labourer has split 620 palings of five feet length in one day. The timber is comparatively not heavy, as it floats in water, unlike that of many other Eucalypts; it is particularly well adapted for shingles,

palings, and rails, and also drawn into use for shipbuilding, especially keelsons and planking.

Besides its timber, the tree is famous for other products of value. Mr. Bosisto has shown that the ashes of the foliage yields 10 per cent. pearlash, and that from 1000 lbs. of fresh leaves, with their stalklets and branches, the yield of Eucalyptus oil by far surpasses all that of other congeners, amounting to as much as 500 ounces per 1000 lbs., or 3·12 per cent. The following table of yields obtained by Mr. Bosisto is quoted by Sir Ferd. von Mueller in his "Eucalyptographia":—

Per 1000 lbs. of leaves, stalklets, and branches—

Eucalyptus	viminalis	yields	7	ounces of	Eucalyptus Oils.
,,	melliodora	,,	7	,,	,,
,,	rostrata	,,	15	,,	,,
,,	obliqua	,,	80	,,	,,
,,	globulus	,,	120	,,	,,
,,	goniocalyx	,,	150	,,	,,
,,	leucoxylon	,,	160	,,	,,
,,	oleosa	,,	200	,,	,,
,,	amygdalina	,,	500	,,	,,

It is mainly on account of this large yield of febrifugal properties that many give preference to the Peppermint Gum for plantations in any paludal fever region; its only drawback being that it does not grow so rapidly as the Blue Gum, nor does it so readily accommodate itself to diversity of soils. It is hardier, however, and it has been known to grow a height of sixty feet in nine years.

Stringy-bark Gum *(Eucalyptus obliqua*—L. Her.*)*—This valuable tree is also widely distributed, being found in abundance in Victoria, South Australia, and Tasmania. It is straight-stemmed, of rapid growth, attaining a maximum height of 300 feet. In Tasmania it ascends high, but short of alpine elevations, occupying mountain ranges, also occasionally on heathy ridges.

Sir F. von Mueller truly remarks that it "is one of the most important of all our trees in regard of its abundance (being the most gregarious of any of our forest trees), and on account of the ease with which the wood is worked. It supplies a large portion of the ordinary sawn hard-timber for rough building purposes; being very fissile, it is also extensively split into fence-rails, palings, and shingles. It is light-coloured. The specific gravity of the wood varies from 0·809 to 0·990, or from 50 to 60½ lbs. per cubic foot. Mr. F. Campbell found the tensile strength per square inch equal to a pressure of 8200 to 8500 lbs."

Mr. Ransome also reports favourably of its timber as follows:—Stringy-bark *(Eucalyptus obliqua).*—A very strong tough wood, with a straight grain, in appearance somewhat resembling American ash. From its great strength and toughness it is well adapted for carriage, cart, and waggon building, wheelwork and agricultural machinery, as well as for the framing of railway carriages and trucks. It is also a valuable wood for the stronger descriptions of building constructions, and would make excellent railway sleepers. From the peculiar strength of the fibre of the grain it will not maintain a good surface; as even when perfectly dry the grain rises so as to render it impossible to polish it successfully.

The test of strength gives the highest results, being equal to the best Oak; thus:—pieces tried, 1″ × 1″ × 30″; distance between bearers, 24″. Deflection at breaking point, $\frac{7}{8}$-inch, breaking weight, 602 lbs., = (S) $\frac{LW}{4BD^2} = 3602$.

The bark of this tree is locally used for roofing bush-huts, and probably it was the bark of this tree that was used by the aborigines for making their rafts. Sir Ferd. von Mueller has shown that the bark is suitable for the manufacture of paper, not only for packing, mill, and paste-boards, but also for printing and writing. The utility of this tree, therefore, is very great.

White Gum—Manna Tree (*Eucalyptus viminalis*—Lab.)—This tree is abundantly distributed throughout the island, and also has a wide distribution in the mainland of Australia. In open country it is of middle size, or not a very tall tree as compared with its congeners. In favourite situations, however, in deep forest glens among other Eucalypts, this tree rises to a very great height. Sir F. von Mueller states that one of them, in the Dandenong Ranges, was measured by Mr. D. Boyle and found to be 320 feet high, and had a stem base of 17 feet in diameter. These dimensions, however, are most extraordinary. The timber varies from light to dull brick colour. Sir Ferd. von Mueller has also given many interesting particulars with respect to its properties and uses. The timber from straight stems is employed for shingles, rails, and also rough building material. It is not so durable as the wood of many other kinds of Eucalypts, but stronger than that of *E. amygdalina* and *E. obliqua*. Mr. Boyle found boards of $\frac{1}{2}$-inch thickness, sawn from the tall-stemmed smooth variety of moist forest glens, to last twice as long as pine boards of 1-inch thickness. The stems of this variety are of an almost uniform thickness up to a great height, and mast-like in straightness. When so chosen the wood is pale and compact, and does not warp. Its timber makes good fuel. The smaller branching trees on open ridges and plains are noted for exuding a sugary substance called "manna," which is esteemed a great luxury, and eagerly sought for by the young.

Gum-topped Stringy-Bark (*Eucalyptus hæmastoma*—Smith.)—Although this valuable timber tree has long been familiar to saw-mill proprietors and splitters, it was in Tasmania overlooked by botanists until brought into notice by Mr. T. Stephens in the year 1881. Neither the description of the tree nor its timber based upon an Australian variety can be relied upon as correct, especially so as regards the industrial value of the timber of Tasmanian kinds. The Australian variety is stated by Sir Ferd. von Mueller to produce timber of inferior value. The Tasmanian variety is held in high esteem. Mr. Stephens states that "the chief peculiarity of this tree (in Tasmania) is that while the lower part of the butt is clothed with a thick fibrous bark closely resembling that of the common stringy bark (*E. obliqua*), the upper part and the smaller limbs and branches are quite smooth; whence its popular name. The timber is highly prized by splitters, and for general

purposes it is described by many competent authorities as second only to the Blue Gum, though opinions seem to differ as to its durability. It is found in most parts of the Colony, and appears to grow as freely on the table land of the interior, reaching an altitude of not less that 3000 feet above the sea, as along the coast line." Mr. C. H. Grant states that "it is a valuable timber. He had (for railway purposes) been supplied with a large number of sleepers from the Huon River. The timber has a different shade of colour to Stringy Bark and to White or Swamp Gum, and also a different grain, which more closely resembles that of Blue Gum. It is a close heavy timber, remarkably free from knots."

Particulars regarding systematic tests of strength, transverse and tensile, have not yet been furnished as regards this valuable Tasmanian variety.

Iron-bark (*Eucalyptus Siberiana*)—Mueller).—This valuable tree, attaining a height of 150 or more feet, is common in alpine and sub-alpine situations in Victoria and New South Wales. In Tasmania it is, so far as presently known, restricted (though there frequent) to the granitic coast ridges and in valleys of rather sandy or stony soil, as well as on slate-hills from Falmouth to George's Bay, occurring also on hills of the sandstone formation north of St. Mary's (Simson) and on East Mount Field, at elevation from 1000 to 1500 feet.

Sir Ferd. von Mueller states that "the trunk is sawn into good timber, and it is also used for posts and rails; wood, among other purposes, recommended for shafts; it resembles much more that of our Blue Gum than that of our Stringy-bark trees; it is hard, and, when seasoned, difficult to cut, but burns well even when fresh." Mr. A. W. Howitt finds the wood of superior quality, light, tough, and elastic, used for swingle-trees of buggies, ploughs, &c., but it will not endure underground.

Red Gum (*Eucalyptus Stuartiana*—Muell.)—This tree is common near Southport, but more widely distributed in south-eastern ranges of Australia. When well grown it attains a middle size, seldom reaching 100 feet in height. Stems oftener twisted than straight. The wood is stated to be hard, but does not split well; it is used for fence-posts, and it is very durable; sometimes used for rough sorts of furniture, as it takes polish well. It is known as "But-But" in Gippsland.

Cider Gum (*Eucalyptus Gunnii*—Hooker).—This tree is very common in alpine situations in Tasmania, as well as in similar situations in Victoria and New South Wales. Under favouring conditions it attains a height of 250 feet, but usually not tall, often crooked or much branched. Wood hard, very good for many purposes of artisans. Does not split well; good for fuel. The tree is noted for yielding a sap of a not unpleasant taste, which is sometimes converted into a kind of cider by bush people—hence the common name.

It does not yield so much kino-tannin as the other large Eucalypts, as indicated in the following quotation from Sir Ferd. von Mueller's Eucalyptographia: *E. amygdalina*, 3·22-3·40; *E. globulus*, 4·84; *E. goniocalyx*, 4·12-4·62; *E. leucoxylon*, 21·94; *E. macrorrhyncha*, 11·12-

13·41; *E. melliodora*, 4·03; *E. obliqua*, 2·50-4·19; *E. polyanthema*, 3·97; *E. rostrata*, 8·22; *E. viminalis*, 4·88-5·97.

Weeping Gum (*Eucalyptus pauciflora*—Sieb.)—This hardy branching gum is of medium size, although sometimes attaining a height of 100 feet. In the Australian and Tasmanian Alps it is the prevailing tree, maintaining its existence in a dwarfed state to nearly the snow-line. The branchlets are more or less pendulous, and this singular habit among gum trees gave to it its common name. The timber is comparatively soft and easy to cut; has a lighter colour than most of its congeners; it splits fairly, though rather brittle and short in the grain; commonly used for log fences and for fuel.

Mueller's Gum (*Eucalyptus Muelleri*—T. B. Moore).—A new variety of Eucalypt has recently been discovered by Mr. T. B. Moore, named by him in honour of Sir Ferd. von Mueller), may here also be noticed, as it is stated to be a valuable timber tree.

In a splendid forest (all of this variety) between the Huon and Derwent water-sheds, the trees at 2000 feet elevation attain a height of 200 feet, their straight stems rising 100 feet without a branch. Mr. Moore states that the wood is of a light red color, extremely hard and surprisingly heavy, and is of a stringy and close-grained character. He further is of opinion that the timber will vie with the Blue Gum in durability and in other important respects. Sir F. von Mueller considers that this new form is allied to *E. cordata*, *E. uringera*, and *E. vernicosa*, which also exist in Tasmania.

There are three other species of Gums (*E. coccifera*, *E. cordata*, and *E. Risdoni*), but they are small or dwarf forms, and are of no particular industrial value.

Blackwood : Lightwood (*Acacia melanoxylon*—Br.)—This forms one of the most handsome of our native trees, and is widely distributed throughout the Colony, especially along the slopes of the North-West Coast. It attains a height of from 60 to 130 feet. Diameter, 1½ to 4 feet; average diameter, about 2¼ feet. According to age and diversity of soil it varies somewhat in appearance and in the character of its timber. The dark-reddish wood, with a beautiful wavy grain, termed Blackwood; the reddish variety, Pencil Cedar (an unfortunate term, as there is a native Pine bearing this name also); and the lighter-shaded varieties, Lightwood. The specific gravity of these woods is about ·885.

Mr. Ransome also examined these woods, and reports as follows :—

"Blackwood (*Acacia melanoxylon*).—A sound mild-working timber of brownish colour, closely striped with streaks of various shades of a reddish brown, and frequently crossed by diagonal marks of a light golden colour. The more ornamental logs of this wood are exceedingly beautiful, and should fetch a high price in this market, where they could be used to advantage in place of the best Honduras mahogany, while the less ornamental logs would serve for the higher class of joinery work, such as counters and other shop fittings. The younger growth is well suited for cooperage work, and a barrel made from one

of the pieces submitted for trial before being artificially seasoned is still quite tight, and shows no sign of shrinkage

"Lightwood *(Acacia melanoxylon)*.—This is an inferior description of Blackwood, from which it differs mainly in being of a lighter colour, and having a somewhat more open grain. Although it will not compete with the blackwood for highly ornamental cabinet work, it could be used in the place of cheap mahogany for wardrobe backs and other similar work.

"Pencil Cedar *(Acacia melanoxylon)*.—This, like the Lightwood last described, is very similar in grain and growth to the Blackwood, and the fact that the same Latin name of *Acacia melanoxylon* is common to this and to the two woods last described is sufficient evidence that they are varieties of the same tree. If Pencil Cedar could be imported into this country at a price that would enable it to compete with the cheaper descriptions of mahogany and cedar, it would meet with a ready sale for the purposes for which these woods are now almost exclusively used."

The test of transverse strength, under the same conditions as the Beech, gave the following excellent results :—

	Deflection at Breaking Point. inches.	Breaking Weight. lbs.		$(S)\frac{LW}{4BD^2}$
Blackwood.....	$1\frac{3}{4}$	518	=	3108
Pencil Cedar*	$1\frac{7}{8}$	476	=	2856
Lightwood.....	$2\frac{1}{8}$	378	=	2268

This shows that these woods far surpass the best mahogany in strength. Locally, the more ornamental forms of blackwood are largely used for furniture, ornamental panelling, &c.; also for railway passenger carriages, wagons, cooperage, and billiard tables. It seems a pity that such beautiful woods should be so largely devoted to inferior uses.

Myrtle or Beech—Red and White *(Fagus Cunninghami—*Hook).—This valuable Beech tree is common, especially in the mountainous and humid districts of western Tasmania, where it forms a large proportion of the forest, ascending to 4000 feet elevation, where it is dwarfed to a scrubby condition. In the 1500 to 2500 levels it attains a great height, sometimes reaching 200 feet, with a girth of 40 feet. The diameter of the average individual, however, ranges about $3\frac{1}{2}$ feet. There are two well marked varieties—the Red and White—both excellent woods as regards strength, but the Red variety is more prized for its more attractive colour when worked up; specific gravity, ·795. In Mr. Ransome's recent experiments on Tasmanian woods, the qualities of both varieties are highly commended, as follows :—

"Red Myrtle *(Fagus Cunninghami)*.—A sound mild-working wood of a bright pink colour, resembling English Beech in grain, and could be used to advantage for all the purposes for which the best Beech is employed in this country, while its superior appearance would enable it to take the place of the cheaper kinds of Mahogany in wardrobes and other cabinet work.

* The name *Cedar acacia* would be more appropriate.

"White Myrtle (*Fagus Cunninghami*).—This wood closely resembles the Red Myrtle last described in texture and grain, but differs from it in colour, having a brownish grey tint. Like the Red Myrtle, it could be used for all the purposes for which the best English Beech is employed, but its somewhat dull and unattractive colour would preclude its being used as a substitute for Mahogany."

From the test of strength made by Mr. Ransome (pieces experimented being 1 inch square by 30 inches long; distance between bearers 2 feet), the following results were obtained :—

	Deflection at breaking point. inches.	Breaking weight. lbs.		$(S) = \frac{LW}{4BD^2}$
Red Myrtle	$1\frac{7}{8}$	452	=	2712
White Myrtle	$1\frac{3}{8}$	459	=	2754

In Molesworth's Pocket Book of Engineering Formulæ, the transverse strength (S) = of English Beech is stated at 1500 to 2000, and Mahogany—Nassau, 1719; Spanish, 1300; Honduras, 1910. It would appear, therefore, that the Tasmanian Beech is much stronger, rivalling that of the best Ash timber.

Huon Pine (*Dacrydium Franklinii*—Hook.)—This is the grandest and most useful of all our Tasmanian soft-woods. It is abundant along the rivers of the south-western parts of the Island, attaining a height of from 60 to 120 feet, with a diameter from 3 to 8 feet—average, 4 feet. Its timber is almost indestructible in any situation, withstanding the attacks of the teredo in water, and of insects and other parasites on land. It is largely employed locally for all kinds of furniture, ornamental work, and is the most highly esteemed of all kinds of wood for the lighter sea-craft. Its qualities are thus reported upon by Mr. Ransome :—"Huon Pine.—This is a beautifully sound and mild-working wood of a light straw colour. As it is very easily worked, and frequently has a very ornamental grain, it is well adapted for first-class joinery work, making beautiful panels and mouldings, and the better figured logs should meet with a ready sale in this country for furniture and cabinet work. As it is somewhat brittle and breaks under a comparatively small strain, it is not suitable for joists, beams, or the heavier descriptions of builders' work, and as it could not be imported into this country at a price which would compete with American Pine, its sale in England would be limited."

Its transverse strength is given as follows :—

$(1'' \times 1'' \times 24'')$

Deflection at breaking point	$1\frac{1}{4}$ inches
Breaking weight	203 lbs.
$S = \frac{LW}{4BD^2}$ equals	1218 lbs.

This is above the average strength of the various Pine timbers so largely used in England.

Mr. Bradley also reports favourably of its great durability, and adds, that iron imbedded in its timbers (even when under water for many years) is most effectually preserved from decomposing agencies.

King William Pine (*Athrotaxis cupressoides*—Don.)—This excellent Pine is confined to the alpine valleys in the neighbourhood of Lake St. Clair, Mount Arrowsmith, Western Mountains, Collingwood Valley, King River, and elsewhere on the West Coast, attaining to a height of from 60 to 80 feet, and the diameter of 30 inches in favourable localities. The regions where it grows are not easily accessible, and hence it is seldom seen in the market. It is very durable, and splits fairly and readily, and on this account it is much prized by miners on the West Coast for building huts. It is used also for light spring carts and for parts of carriage work.—(Bradley.)

Red Pine (*Athrotaxis selaginoides*—Don.)—This Pine is similar in habit to the last mentioned, but rarely attains to so great a height. It occurs on the Western Mountains, Mount Field East, Port Davey, and other places in the south west. Its timber has usually a deeper tone of red, but in all other respects corresponds very closely with *A. cupressoides*. There is another species called the Mountain Pine (*A. laxifolia*—Hook) on the Western Mountains, which is not so important for industrial purposes, being practically a more dwarfed variety of *A. selaginoides*.

Oyster Bay Pine (*Callitris cupressiformis*—Vent., or *Frenela rhomboidea*—Endl.)—This remarkable pine is restricted to the East Coast, between Spring Bay and Bicheno. It usually attains a height of 60 feet, sometimes as high as 80 feet; diameter at butt about 18 inches. "The smaller pines are locally used for rafters to buildings, also for oars, masts, and yards for boats. The larger trees are sawn into boards for building purposes—indeed they do well for all the internal fittings of a house, including staircases, sashes, and doors. The boards shrink little in drying, and rarely warp while seasoning. I have had doors, floors, sashes, &c. that have had upwards of 20 years' wear, and judging from their appearance the timber must be very durable."—(Francis Cotton).

This tree also yields the true Sandarach or Gum Juniper of commerce. Settlers in the Oyster Bay district, by making incisions in the stem to stimulate the flow of the fine pale resin at certain periods of the year, might find much profit from its collection. This resin is one of the most useful ingredients in varnish, increasing in hardness and glossiness.

Celery-top Pine (*Phyllocladus rhomboidalis*—Rich.)—This is a most peculiar type of pine, with curious leaf-shaped branchlets of a cuneate or rhomboidal form. It is commonly found in mountainous regions, particularly in the southern and western parts of the Island. It is a slender tree, attaining a height of 60 feet, but reduced to a shrub on high mountains. The wood is tough and heavy, but useful for field gates and such like purposes, and is much prized for masts of boats.

Silver Wattle (*Acacia dealbata*—Lab.)—Forms a beautiful umbrageous tree; has a rapid growth, and attains a height of from 60 to 120 feet, with a diameter of from 1½ to 2½ feet; specific gravity, ·965

Its wood is extremely hard and tough, and is well adapted for cask-staves, treenails, and other like purposes. It lasts better that any other timber in salt water, resisting the attacks of teredo, and in this respect it is specially suitable for marine buoys, &c. The wood has a beautiful banded red and white colour, and takes a fine polish.

Black Wattle (*Acacia mollissima*—Willd).—Almost similar to the last-mentioned in all respects, but its foliage lacks the silvery appearance of its congener. Both trees grow abundantly throughout the Island, and their bark, being highly esteemed for tanning purposes, is exported in large quantities. The Black Wattle bark is esteemed the best.

Mr. F. Bond, of Hobart, states that the yield of tannin properties in the two Tasmanian species, as indicated by the Barkometer, is as follows:—Silver Wattle, 10–16 points; Black Wattle, 25–31 points. Silver Wattle, ground, in bags, averages (1889) £3 to £4 per ton; Black Wattle averages £8 to £8 10*s*.

Iron Wood (*Notelea ligustrina*—Vent.)—A small tree, from 20 to 35 feet in height, found commonly throughout the Island. Its wood is exceedingly hard and close-grained, reddish colour, and takes a high polish. This beautiful wood is well adapted for mallets, sheaves of blocks, and turnery. Sp. gravity, ·965.

Native Cherry (*Exocarpus cupressiformis*—Lab.)—This singular cypress-like tree is common in the eastern parts of the Island, and attains a height of from 20 to 30 feet, with a diameter from 9 to 18 inches. It has a good appearance when worked up, and is well suited for tool-handles, gun-stocks, spokes, &c. Sp. gravity, about ·790. Takes a fine polish.

Woods suitable for Turnery.—The following trees, mostly attaining a height of from 20 to 30 feet, are well suited for turnery purposes:—

Native Pear (*Hakea lissosperma*—Br.)
Scentwood (*Alyxia buxfolia*—Br.), odour similar to Finger Bean.
Swamp Tea Tree (*Melaleuca ericifolia*—Sm.)
Pinkwood (*Eucryphia Billardieri*—Spach.)
* Native Box (*Bursaria spinosa*—Car.)
* White Wood (*Pittosporum bicolor*—Hook.)

Horizontal Scrub (*Anodopetalum biglandulosum*—Cunn.)—A shrub or tree attaining to a height of from 50 to 60 feet, with a diameter from 8 to 12 inches. This is the scrub which proves such a barrier to explorers in the Western Highlands, from its habit of forming interminable interlacing thickets among other trees. Its wood is exceedingly hard, supple, and tough, and would no doubt take the place of American Hickory in many uses, such as in coach-work, tool-handles, light frame chairs, &c.

* These woods have been used successfully for wood-engraving.

Ornamental Woods.*—The following comprise the various trees which are in high esteem for the beauty of their grain and varied colouring; all taking a good polish. They are eminently adapted for ornamental work, veneers, &c.:—

Blackwood (*Acacia melanoxylon*), wavy varieties.
Huon Pine (*Dacrydium Franklinii*), knotted parts.
She-oak† (*Casuarina quadrivalvis*).
He-oak† (*Casuarina suberosa*).
Musk Wood (*Aster argophylla*), root bole.
Native Laurel (*Anopterus glandulosus*).
Blue Gum (*Eucalyptus globulus*), curly-grained variety.
Peppermint (*Eucalyptus amygdalina*), wavy-grained variety.
Myrtle (*Fagus Cunninghami*), knotty parts of bole.

Trees and Plants yielding Fibrous materials:—

Currajong (*Plagianthus sidoides*—Hook.), bark of shrub.
Lyonsia (*Lyonsia straminea*—Br.), bark of creeper.
Blue Gum (*Eucalyptus globulus*—Lab.), bark of tree.
Stringy-bark (*Eucalyptus obliqua*—L. Her.), bark of tree.
Lepidosperma squamatum—Lab., leaf fibres.
Fibrous Grass (*Stipa semibarbata*—Br.), fibrous stems.

Pithy Substances.

Rush (*Juncus vaginatus*—Br.), pith.

Bark and Timber Exported from Tasmania.

The value of Tasmanian Bark and Timber exported during the last five years amounted to £624,143, or an average of about £124,828 per year. This represents nearly $\frac{1}{12}$th of the total exports. By far the greater part was shipped direct to Victoria, although, as regards Bark, the greater portion was destined for European markets. Apart from Wattle Bark, which generally forms the chief article of value, the following are the principal timbers exported—viz., Blue Gum, Stringy Bark, and Blackwood. The value of exports to various countries is shown, in respect of the year 1890, in the order of their importance; thus:—

Exports to each Country during 1890.

	Bark.		Timber of all kinds.
1. Victoria	£39,116	1. Victoria	£14,213
2. New South Wales	26,198	2. South Australia	11,334
3. New Zealand	17,924	3. New Zealand	4651
4. United Kingdom	2226	4. New South Wales	7550
5. Queensland	1508	5. Other Countries	554
6. South Australia	165		
Total	87,137	Total	38,302

* Mr. Ransome greatly admired the polished examples of the woods in this list, and states that they would be valuable in the English market for cabinet work.

† In addition to their ornamental uses, it is found that for toughness, durability, absence of shrinkage or expansion, the timber of these trees excels all other known timbers for such purposes as boat knees, belaying pins, &c.

The following Tables give further particulars regarding the nature of the Timber exported, and also the proportions for each country :—

BARK and Timber exported from Tasmania during the Five years 1886–1890.

Quantities and Values.

	1886.	1887.	1888.	1889.	1890.
Bark ..... Tons	12,030	9689	7814	10,575	11,008
Value £	79,606	60,898	61,829	87,248	87,137
Timber, Quantities—					
Palings ..... No. thousands	2120	1530	1674	1417	912
Treenails, Spokes, &c. ..... ditto	418	391	267	262	422
Posts, Rails, &c. ..... ditto	49	12	55	37	26
Piles, Beams, &c. ..... No.	75	...	...	(ft)4517	...
Laths, Shingles... No. thousands	589	120	5	190	105
Sawn and Hewn ..... 1000 feet	6296	7503	15,164	12,231	5652
Logs ..... ditto	...	63	250	212	86
Slabs ..... ditto	...	...	...	...	...
Shaped Pieces ..... No.	8842	3917	11,632	9497	57,406
Blackwood, sawn..... 1000 feet	1186	320	1174	1574	1045
Blackwood, log..... ditto	...	735	766	1505	639
Batten ..... ditto	...	...	...	...	...
Value ..... £	37,353	37,411	71,198	63,161	38,302
Total Value, Timber and Bark	116,959	98,309	133,027	150,409	125,439

DIRECTION and Value of Exports of Bark and Timber for Five years 1886–1890.

United Kingdom ..... Bark, £	9816	3040	90	1460	2226
Timber, £	149	25	8	...	22
Victoria ..... Bark, £	28,758	22,647	26,393	49,158	39,116
Timber, £	19,812	24,382	50,602	36,187	14,213
New South Wales ..... Bark, £	23,400	23,921	21,808	19,787	26,198
Timber, £	3095	2988	2198	4243	7550
Queensland ..... Bark, £	1355	963	1006	1060	1508
Timber, £	120	221	585	...	22
South Australia..... Bark, £	120	70	...	45	165
Timber, £	5389	5837	12,529	16,766	11,334
New Zealand ..... Bark, £	16,157	10,257	12,532	15,738	17,924
Timber, £	8596	3958	5284	5965	4651
Other Countries..... Bark, £	...	...	...	...	...
Timber, £	292	...	...	...	510
All Countries { Bark, £	79,606	60,898	61,829	87,248	87,137
Timber, £	37,353	37,411	71,198	63,161	38,302
Bark and Timber, £	116,959	98,309	133,027	150,409	125,439

TIMBER TRADE AND INDUSTRIES.

Timber Imports from other Countries.

Notwithstanding our almost infinite local resources, the importation of foreign timber into the Colony is comparatively large. These imports, however, are almost wholly confined to soft-woods of the Pine family, and though frequently shipped from Australian ports to this

Colony, they are—with the exception of the New Zealand "Kauri"—mostly derived from Europe and America. The softer woods of these countries are much used in the internal wood-work of houses, and especially for sashes, doors, &c. The larger part of these imports comes from Sweden. Our own native Pines are much superior for beauty and durability; but owing to inacessibility of the regions in which they grow they cannot be introduced so cheaply into the local markets.

Perhaps, too, the conservative spirit of architects, accustomed to European and American woods, have some influence in repressing the use of local timber when they might be used with the greatest advantage. The following table shows the quantity and value of these imports during the last five years, distinguishing the countries from which the timber was shipped :—

Timber Imported during the last Quinquenniad.

	Quantity in superficial feet.					Value.				
	1886.	**1887.**	**1888.**	**1889.**	**1890.**	**1886.**	**1887.**	**1888.**	**1889.**	**1890.**
	No.	No.	No.	No.	No.	£	£	£	£	£
	Dressed Timber (Tongued and Grooved Boards, &c.)									
United Kingdom	417,600	352,719	125,890	32,246	...	2062	3955	1175	202	...
Victoria	691,350	410,569	431,507	158,119	397,200	3414	5561	5006	1704	3217
New South Wales	364,100	23,375	...	3850	...	1798	229	...	100	...
Queensland	...	...	...	...	...	...	...	...	...	...
New Zealand	...	400	1575	3425	...	...	3	10	40	...
America	72,950	54,632	17,050	83,523	67,335	360	400	180	492	702
Sweden	...	905,422	200	1,228,416	926,763	...	9215	2	9388	8334
Total (Dressed)	1,546,000	1,747,117	576,222	1,510,579	1,391,298	7634	19,363	6373	11,926	12,253
	Sawn Timber.									
United Kingdom	324,753	284,415	118,159	115,097	77,875	2327	1873	678	720	546
Victoria	982,047	807,158	258,450	348,719	217,024	3912	5661	2413	3425	2782
New South Wales	187,902	202,384	29,804	472,445	203,951	1417	1443	317	3082	2211
Queensland	...	190,000	...	...	...	...	800	...	...	...
South Australia	21,985	75,000	...	...	32,570	199	350	...	...	270
New Zealand	1,273,561	576,350	1,270,047	548,581	1,589,785	7513	3415	5854	2416	9306
America	700,252	33,194	279,950	672,283	...	3345	360	1800	4700	...
Sweden	...	1,258,884	1,034,060	1,042,165	1,052,121	...	6900	4181	8002	7628
Germany	...	130,800	...	...	...	...	872	...	...	...
Total (Sawn)	3,440,500	3,558,185	2,990,470	3,199,290	3,173,326	18,713	21,674	15,243	22,345	22,743
Total (Dressed and Sawn)	4,986,500	5,305,302	3,566,692	4,709,869	4,564,624	26,347	41,037	21,616	34,271	34,996

CHAPTER VII.

Fauna and Animal Products.

FAUNA.

The indigenous Fauna of the Colony is somewhat similar to that of the Australian mainland.

Mammalia.

Of the 46 species of terrestrial Mammals inhabiting the Island, 2 belong to the Monotremata, of which the peculiar animal known as the Duck-bill Platypus is the most remarkable. There are 27 representatives of the Marsupialia or pouched animals, 9 of which are peculiar to the Island; the most remarkable of these being the ferocious Tasmanian Devil (*Sarcophilus ursinus*), and the wolf-like Native Tiger, (*Thylacinus cynocephalus*). The Bats have 4 representatives. Of Rodents, or gnawing animals, there are 13 representatives, of which the most conspicuous is the common Water Rat, or Yellow-bellied Musk Rat (*Hydromys chrysogaster*).

The following is a complete List of the terrestial Mammals so far as known :—

* Those marked with an asterisk are supposed to be peculiar to the Colony.

Monotremata :
- Platypus (*Ornithorhynchus anatinus*).
- Porcupine (*Echidna setosa**).

Chiroptera (Bats)—Family *Vespertilionidæ* :
- Long-eared Bat (*Nyctophilus Timoriensis*—Geoff.).
- Tasmanian Bat (*Vespertilio Tasmaniensis*).
- Small-toothed Bat (*Scotophilus microdon*).

Family *Pteropodidæ* :
- Flying Fox† (*Pteropus foliocephalus*).

Marsupialia, or Pouched Animals :
- Forester Kangaroo (*Macropus major*).
- Brush Kangaroo (*Halmaturus Bennettii.*)*
- Wallaby (*Halmaturus Billardieri*).*
- Jerboa Kangaroo (*Bettongia cuniculus*).
- Potoroo (*Potorous murinus*).
- Red Kangaroo Rat (*Potorous rufus*).*
- Wombat (*Phascolomys wombat*).
- The Bandicoot (*Perameles obesula*).
- Striped Bandicoot (*Perameles Gunnii*).*
- Mice-like Marsupials, having no distinguishing common name (*Antechinus Swainsonii*,* *A. minima*,* *A. albipes*, *A. leucopus*,* *A. Rolandensis*,* *A. leucogenys*,* *A. niger*,* *A. concinnus*,* *A. Moorei*,* *A assimilis*.*

† Does not inhabit the mainland of Tasmania. Occurs on Kent's Group, and probably King's Island.

Opossum Mouse (*Dromicia nana*).*
Common Opossum (*Phalangista vulpina*).
Ring-tailed Opossum (*Phalangista Cookii*).
Tiger Cat (*Dasyurus masculatus*).
Native Cat (*Dasyurus viverrimus*).
Native Devil (*Sarcophilus ursinus*).*
Native Tiger or Hyæna (*Thylacinus cynocephalus*).*

DECIDUATA.—*Rodentia:*

Yellow-bellied Musk Rat (*Hydromys chrysogaster*).

True Mice, but having no separate distinguishing common names: *Mus setifer*,* *M. castaneus*,* *M. fuscus*,* *M. leucopus*,* *M. pachyurus*,* *M. Simsoni*,* *M. tetragonurus*,* *M. variabilis*,* *M. velutinus*.*

It will be seen from this List that, with the exception of the small Rodents, there is a general absence among the Mammals of all such forms as are to be met with in ex-Australian regions. The most characteristic forms are the Pouched Kangaroos, Devils, Tigers, Bandicoots, &c. The Forester Kangaroo is now fast disappearing. The male attains the length of upwards of five feet from the tip of the nose to the root of the tail. The hind quarters of the Kangaroo and Wallaby are much esteemed as food. The flesh, when cooked, tastes something like venison. The Wombat is also used for food, and, when cooked, the flesh tastes like that of sucking-pig. The rest of the animals are not utilized except for their fur or skins; and of these the following are most valuable—viz., Common Black and Grey Opossum (fur); Native Cats, Wallaby, Kangaroo, and Tiger (skins).

The Devil and Tiger are very ferocious, and prey upon the sheep as well as upon the native animals. In mountain regions they are still a source of trouble to sheepowners; but they rarely attack man except when closely pursued.

MARINE MAMMALS.

Besides the terrestrial forms, there are various species of Whales, Seals, and Porpoises in the neighbouring seas. The latter enter the estuaries and rivers during the summer in immense schools. The most important for commercial purposes are the Black and Sperm Whale. In the year 1851-2 the Sperm Whale Fishery formed one of our principal industries, but it has fallen off recently owing partly to the greater scarcity of the animals, but chiefly to the introduction of the cheaper mineral vegetable oils.

BIRDS.

Nearly all families of Birds are well represented, although comparatively few are peculiar to the Colony. Altogether there are about 187 indigenous species, including 11 Hawks and Eagles, 1 Osprey, 3 Owls, 8 Parakeets, 4 Lorikeets, 5 Cuckoos, 2 Kingfishers, 1 Swift, 2 Moreporks (*Caprimulgidæ*), 4 Crows and Magpies, 1 Summer-bird, 1 Shrike-thrush, 5 representatives of the Butcher-bird family (including the mellow-noted Magpie, which is everywhere a general favourite), 3

Fantails, 5 Flame-breasted Robius, including the beautiful little Blue Wren, 3 Thrushes, 8 of the family *Timeliidæ* (embracing the curious little Emu Wren, the Ground Dove, Rush Warbler, and Bush Tits), 10 representatives of the Honeyeaters (embracing the prized Wattle Birds and the garrulous Miner), 1 White Eye, 3 Diamond Birds, 2 Migratory Swallows, 1 Wood Swallow, 1 Finch, 1 Pipit, 4 Pigeons (including the 2 Bronze-wings), 4 Quail, 8 species of *Rallidæ* (embracing the Coot, Native Hen, and the Crakes and Rails), 9 species of the Curlew family, including the Australian Snipe, 10 Plovers, 2 Oyster Catchers, 4 Terns, 2 Gulls, 2 Skus, 28 species of the family *Procellaridæ*, which includes the Wandering Albatross, Mutton Bird, Cape Pigeons, Prions and various Petrels, 5 species of the family *Pelecanidæ* (including the large Australian Pelican, the Australian Gannet, and 3 Cormorants, all of which are most destructive to fish), 12 species of *Anatidæ*, embracing that *rara avis* the Black Swan (Cape Barren Goose), Musk and other Ducks, 4 Herons, 1 Bittern, 3 Grebes, and 3 Penguins.

Although the orders *Passeres* and *Grallæ* embrace nearly half of all the known species, they are not so important as the smaller orders *Columbæ*, *Gallinæ*, and *Anseres*, which afford so much amusement to sportsmen, and supply the table with many delicacies. The various species of Pigeon, Quail, Geese, Wild Duck, and Black Swan are very abundant in the Lake districts, and even near the cultivated settlements.

Many of the beautiful breasted sea-birds might furnish valuable skins for commercial purposes, notably the various species of Penguin. The only species at present utilised to any extent for commercial purposes is the Mutton Bird, on the islands of the Furneaux Group. Millions of these Sooty Petrels there make their nests in open burrows on slopes facing the sea. At the proper season (December) the half-castes destroy the young in vast numbers, from which they obtain a valuable anti-friction oil, called Mutton Bird Oil. It is used on the local railways for lubricating the axle boxes of waggons and carriages, machinery, &c. The flesh of the Mutton Bird, which is preserved in large quantities, also forms an important article of food for these islanders. To those who can overcome the rather overpowering odour, the flesh is not disagreeable, and tastes like mutton; hence the common name.

The sea birds breed during the season in myriads on the islands near the coast, and the fishermen prize the eggs of many of them, which they consume as food. It is stated that the eggs of the Common Gull have a fine sweet flavour, equal to those of the domesticated hen.

The largest birds are the Cape Barren Goose and the Black Swan. The Emu, which existed on the island at the time of the first settlement, is now extinct.

Colonel Legge also contributes the following observations :—"As regards the number of its species, Tasmania compares ill with islands of a warmer climate. If we take her typical land birds, and eliminate the last 8 orders, beginning at the Rails, we have only some 90 or more species; and as regards the water-frequenting birds, though the Waders, *Grallæ*, are fairly represented with 21 species, yet the Petrels vastly predominate over the other orders of these birds, there being no

less than 28 sorts of these oceanic wanderers. In land birds, with which we should be more particularly interested, there are no families of the great *Passerine* order with very many species; that which is best represented being honeyeaters (10 sp.) whose existence here is of course due to our honey-bearing trees. In this family the handsome Spinebill, the Tasmanian Honeyeater, the Miner, and the Wattle Bird are the most noteworthy species. The Pigeons and Game Birds are only fairly represented. It is a marked feature of the Australian Avifauna that there are no large representatives of the *Tetraonidæ* (Partridges), the diminutive sub-family of the Quails doing duty for all the rest. The 'Skulker' order comes well to the front in our island, as we have 8 species of Rails, but some of these are very rare. In the next order, of Waders, which are moderately well represented, there are several well-known cosmopolitan migrants, such as the interesting little Turnstone, the Whimbrel, and the Grey Plover *(Squatarolo Helvetica)*, which pay us an annual visit, while other members, widely distributed in the old world, such as the Curlew Stint, the Godwit, and the Golden Plover, likewise visit us. It should not be overlooked, also, that the Snipe of Australia, abundant in this Island, is one of the finest species of its numerous family. The list of our sea-birds is swelled by the great number of Petrels found round our coasts, the largest of which is the magnificent Albatross, and the smallest the Storm Petrels, called by sailors 'Mother Carey's Chickens.' One of these species, the Yellow-footed Storm Petrel *(Oceanites oceanica)*, is the smallest sea-bird but one in the world. The Sea Gulls are poorly represented, there being but two species of the true Gull on our coasts. The Terns or Swallows of the Sea are more numerous, there being four species, but they are locally distributed, and not numerous, and consequently we are less familiar with them. Among the 'Pouncer' order *(Steganopodes)*, we have one troublesome and widely-distributed species, the Common Cormorant, which is most destructive to our important fish. The Duck order *(Anseres)* contains several interesting forms, which are distinct Australian types, such as the Cape Barren Goose, the Freckled Duck, the Membranaceous Duck, and the Musk Duck; while our Swan, the only species of its interesting family in Australia, has a world-wide reputation, founded on its remarkable colour. Of the remaining Orders there is not much to be said; those singular birds, the Grebes, well known as furnishing such beautiful trimmings for ladies' attire, are well represented by 3 species; and the Penguins, by the same number."

The following is a brief classified Synopsis under the Orders and Families, as arranged by Col. Legge, *R.A.*, one of our best Ornithologists :—

	Species.		Examples.
Order ACCIPITRES—			
Family *Falconidæ*	11		Swamp Hawk, Wedge-tailed Eagle
,, *Pandionidæ*	1		Osprey
,, *Bubonidæ*	2		Hawk-owl
,, *Strigidæ*.....	1		Barn-owl
		— 15	
Order PSITTACI—			
Family *Psittacidæ*	8		Black Cockatoo, Parakeet
,, *Trichoglossidæ*.	4		Swift Lorikeet
		— 12	

	Species.		Examples.
Order PICARIÆ—			
Family *Cuculidæ*	5		Bronze Cuckoo
„ *Alcedinidæ*.....	2		Tasmanian Kingfisher
„ *Cypselidæ*	1		Spine-tailed Swift
„ *Caprimulgidæ*..	2		Morepork
	—	10	
Order PASSERES—			
Family *Corvidæ*	4		Black Magpie, Crow
„ *Campophagidæ*	1		Summer Bird
„ *Prionopidæ*	1		Whistling Shrike-Thrush
„ *Laniidæ*	5		Magpie, Jackass
„ *Muscicapidæ*...	8		Flame-breasted Robin, Wren
„ *Turdidæ*	3		Ground Thrush, Red Warbler
„ *Timeliidæ*.....	8		Ground Dove, Emu Wren
„ *Melyphagidæ*...	10		Wattle Bird
„ *Zosteropidæ*.....	1		White Eye
„ *Dicæidæ*	3		Diamond Bird
„ *Hirundinidæ* ...	2		Tree Swallow
„ *Fringillidæ*	1		Fire-tailed Finch
„ *Motacillidæ*	1		Australian Pipit
„ *Artamidæ*	1		Wood Swallow
	—	49	
Order COLUMBÆ—			
Family *Gouridæ*	2		Bronze Wing Pigeon
„ *Treronidæ*.....	2		Topknot Pigeon
	—	4	
Order GALLINÆ—			
Family *Tetraonidæ*	3		Stubble Quail, Brown Quail
„ *Turnicidæ*.....	1		Painted Quail
	—	4	
Order FULICARIÆ—			
Family *Rallidæ*.....		8	Coot, Native Hen
Order GRALLÆ—			
Family *Scolopacidæ*.....	9		Snipe, Curlew
„ *Charadriidæ*.....	10		Golden Plover, Grey Plover
„ *Hæmatopodidæ*..	2		White-breasted Oyster Catcher
	—	21	
Order GAVIÆ—			
Family *Laridæ*	8		Little Gull, Caspian Tern
„ *Procellariidæ*....	28		Albatross, Mutton Bird, Petrel
	—	36	
Order STEGANOPODES—			
Family *Pelecanidæ*		5	Pelican, Gannet, Cormorant
Order ANSERES—			
Family *Anatidæ*		12	Black Swan, Cape Barren Goose Wild Duck
Order HERODIONES—			
Family *Ardeidæ*.....		5	Bittern, Heron
Order PYGOPODES—			
Family *Podicipidæ*		3	Little Grebe
Order IMPENNES—			
Family *Spheniscidæ*.....		3	Fairy Penguin
Total		187	

Reptiles.

Reptiles are very poorly represented in the Island. There are no Tortoises anywhere in our rivers; and the Turtles have only one solitary representative in our seas, and of its existence we have only recently become aware by the capture of one solitary example (the Luth or Leathery Turtle—*Sphargis coriacea*) at Southport. Crocodiles of any kind are entirely absent. Of Snakes there are only three species; viz.—

Tiger Snake or Banded Snake (*Hoplocephalus curtus*).
Copper-head Snake (*Hoplocephalus superbus*).
Whip Snake (*Hoplocephalus coronoides*).

In the summer these snakes are not uncommon in open sandy bush tracts and on the margins of swamps. The two first attain a length of nearly six feet, but no specimen has been recorded over that length. The Whip Snake is very small; it is seldom found over 12 to 18 inches long. All of our snakes are venemous, and sometimes cause the death of animals. Human beings are occasionally bitten, but death from snake-bite is seldom recorded; no death from this cause has occurred for many years past. It has been shown, however, that dogs bitten by captive Tiger Snakes seldom survive; most of them died within two hours. Snake antidotes of various kinds have been prepared by one or two persons; and it is noteworthy that Tiger Snakes experimented upon by an old man named "Charlie" from Green Ponds, about three years ago, were on several occasions allowed to inflict bites upon his hands. On such occasions he immediately rubbed the part with the antidote, and seemed to suffer no serious injury from the bites thus inflicted. Dogs bitten by the same snakes died quickly, with severe convulsions and vomiting. It is possible that certain persons are so constituted that snake-bite may be comparatively innocuous. "Charlie" is stated to have been a hard drinker, and as the application of strong spirits is often efficacious in case of snake-bite, it is possible that his preservation from the effects of snake-bite was due more to this influence than to the supposed antidote.

The natives were in the habit of roasting and devouring the larger snakes. The flesh roasted is very good, resembling the cooked flesh of a young chicken.

Representatives of the Lizard family are exceedingly abundant in stony places. Some of them are very beautifully marked with colours and scutes. All are small and harmless. The largest of the 17 species known attains a length of from 12 to 15 inches. It is called, locally, the Iguana or Sleeping Lizard (*Cyclodus ingrolutens*), and it is stated that it attacks the snakes and destroys them.

Fishes.

The known sea and inland fishes of Tasmania, including the seven species of European fresh-water fishes successfully acclimatised, number 213 species. These are generally grouped by naturalists under 4 sub-classes, 65 families, and 145 genera. About one-third of the number stated may be considered good edible fish, although only about 21 species are caught in sufficient number to form a market supply. The following are the local names of those found in greatest abundance, the

first six alone forming articles of export*:—The Hobart Trumpeter, Perch *(Chilodactylus)*, Snotgall Trevally, Barracouta, Kingfish, Conger Eel, Native Salmon, Bastard Trumpeter, Red Perch, Rock Gurnet, Flathead, Horse Mackerel, Sea Mullet, Rock Cod, Ling, Flounder, Sole, Garfish, Common Eel.

The first of these, the Hobart Trumpeter, is undoubtedly the king of Tasmanian Fishes, and is generally esteemed as the finest of the Australian edible fishes. It commands a high price and ready sale in the local market as well as in the neighbouring colonies; but, unfortunately, although captured in considerable numbers all the year round, it is very limited in its distribution, being confined to certain coral reefs or banks 10 to 70 fathoms deep fringing the southern coasts of Tasmania between Granville Harbour in the west and Seymour in the east.

The Barracouta, Kingfish, and Rock Cod appear periodically in such vast numbers that frequently the supply is greatly in excess of local demand. Owing to the absence of proper fish-curing establishments, large quantities have, at times, been known to be wasted or merely utilised as manure.

It is known also that large schools of Sand-smelts, Sprats, and Anchovies appear upon our coasts at regular seasons, but, for the reasons already mentioned, and because the fishermen lack the proper appliances in the shape of *Pilchard Seine* nets, no attempt hitherto has been made to open up an industry in this particular direction.

Trawl-nets have been tried on the coast, but without good result. Either the class of bottom fish is absent from our waters, or the proper grounds have yet to be discovered suitable to this mode of capture.

Besides the fishes proper, the fishing industry is largely dependent upon the capture of a fine species of Crayfish *(Palinurus Edwardsii)* which often weighs, when mature, from 6 to 7 lbs. It is estimated that there are over 280 tons of this highly-prized Crustacean brought to market yearly, including those exported to Victoria and New South Wales, but excluding those used for baiting purposes and those captured by Victorian boats. There is also a small Prawn taken in considerable quantities during the season in the River Tamar. They abound all round our coasts, but little attention has been devoted to them anywhere on the coast beyond the River Tamar.

Of Molluscs there is only one of any importance,—viz., the Common Mud Oyster. Although not now abundant—the beds now worked only yielding about 100,000 oysters per year—it is estimated by competent authorities that, about 20 years ago, the various beds now unprofitable yielded about 44,000 bags, or 22,000,000 oysters per year.

The destruction of these once prolific Oyster beds have engaged much attention. Although attributed generally to reckless unrestricted dredging continued until the greater number of the beds were wholly destroyed, it is believed by some that natural causes were operating concurrently with the causes alleged. Attempts have recently been made to extend the cultivation of the Oyster in the old habitats with

* For further particulars regarding Natural History and Classification, see Report of the Tasmanian Fisheries Commission, 152 pp., 1882; and General and Critical Observations on the Fishes of Tasmania, with a Classified Catalogue of all the Known Species, by R. M. Johnston, F.L.S., &c. (Proc. Roy. Soc. of Tasmania, 1882).

great promise of success. Natural conditions again seem to be working round in favour of the development of the Oyster. The prolific fall of Spat during the last two or three years in the natural beds at Cole's Bay and Little Swanport, and their rapid growth there, promises well for the future of the new centres where artificial beds are laid down.

The following is a more extended List of the Edible Fishes brought to market in more or less abundance, according to the kind and season :—

List of the Principal Edible Fishes in Tasmanian Waters.

[a] Abundant all the year round. [b] Abundant during the season only.
[c] Common all the year round. [d] Common during the season only.
[e] Not uncommon ditto. [f] Not uncommon ditto.

Percidæ (Perch Family).

Anthias rasor	*Red Perch* [d]	Season, winter.
Lates colonorum	*Brackish Water Perch* [a]	Confined to Anson's River.
Arripis truttaceus	*Native Salmon* [a]	Periodically enter estuaries in schools.

Sparidæ (Bream Family).

Girella tricuspidata	*Black Bream* [d]	Season, October to March. C. Australis enters brackish water lagoons and mouths of rivers for spawning purposes.
„ simplex	*The Sweep* [d]	
Chrysophrys Australis	*Silver Bream* [d]	

Cirrtritidæ (Trumpeter Family).

Chilodactylus Allporti	*Carp* [d]	Season, January to March.
„ macropterus	*Perch* [a]	Height of season (mature), April to August.
„ vizonarius	*Magpie Perch* [f]	
Latris hecateia	*Trumpeter* [a]	The most excellent of all Tasmanian fish. Sometimes reaches a weight of 60 lbs.
„ Forsteri	Silver Bastard [b]	Abundant during season, January to March. Rivals the Real Trumpeter at this stage.
	Red Bastard [a]	Immature form; good, but not equal to mature form.
Mendosoma Allporti	*Real Bastard* [e]	

Scorpænidæ (Gurnet Family.)

Sebastes percoides	*Rock Gurnet* [c]	Found on the outer reefs.

Tricheuridæ (Barracouta Family).

Lepidopus caudatus	*Frost Fish* [f]	Caught at odd times—winter.
Thyrsites atun	*Barracouta* [b]	Important food fish. Caught in vast numbers, November to August.
„ Solandri	*King Fish* [b]	Season, December to June. Come and go in vast numbers, but disappear in some years altogether.

Carangidæ (Horse Mackerel Family).

Trachurus trachurus	*Horse Mackerel* [b]	Season, January to April.
Caranx Georgianus	*Silver Trevally* [b]	Enter Tamar and other rivers, midwinter.
Seriola grandis	*Tasmanian Yellow-tail* [b]	Abundant Northern Coast, March to April.

Neptonemus brama	*Snotgall* [b]	Season, March to April.
„ dobula	*Mackerel Trevally* [b]	ditto, entering estuaries in large schools.

CYTTIDÆ (Dory Family).

Cyttus Australis	*Bastard Dory* [d]	Enter estuaries in schools, but seldom captured.

TRACHINIDÆ (Whiting Family).

Uphritis Urvillii	*Sandy* [a]	Abundant in the River Jordan and East Coast rivers.
Sillago ciliata	*Whiting* [d]	One of the most delicious fishes in our estuaries.

COTTIDÆ (Flathead Family).

Platycephalus Bassensis	*Common Flathead* [a]	A very fine fish, though repulsive looking. Abundant on sandy bottoms.

ATHERINIDÆ (Silver Belly Family).

Atherina presbyteroides „ hepsetoides „ hepsetus „ microstoma „ Tamarensis	*Silver Bellies*	These little fishes are found everywhere in vast shoals. Although seldom exceeding 5 inches long, they form a delicious article of food. No trouble is taken to capture them for market.

MUGILIDÆ (Mullet Family).

Mugil cephalotus	*Sand Mullet* [d]	Excellent fish. Found on the northern and eastern coasts.
Agonostoma Forsteri	*Estuary Mullet* [a]	Caught chiefly by hand-rod, in large numbers.

LABRIDÆ (Parrot Fish Family).

Cossyphus cerulæus	*Blue Head* [a]	Abundant, and although good food, it is not brought to market.

GADOPSIDÆ (Blackfish Family).

Gadopsis marmoratus	*Freshwater Blackfish* [a]	An excellent fish, peculiar to our northern rivers.

GADIDÆ (Cod Family).

Pseudophycis barbatus	*Rock Cod* [a]	Excellent fish, well suited for smoking. Very numerous during winter.

OPHIIDÆ (Ling Family).

Genypterus blacodes	*The Ling* [e]	Very fine fish.

PLEURONECTIDÆ (Flounder Family).

Rhombsolea manopus	*Flounder* [a]	Excellent table fish.
Amnotretis rostratus	*Sole* [e]	Abundant in some estuaries.

SALMONIDÆ (Salmon Family).

Retropinna Richardsoni	*Whitebait or Smelt*	Enters estuaries in large shoals. Though only 3 to 4 inches long, they are very delicious.

Salmo salar	The Salmon	These valuable fishes have all been successfully introduced from the United Kingdom. The three last species are very abundant now in our rivers and seas. The Brown Trout sometimes reaches a weight of 32lbs.
„ trutta	Sea Trout[b]	
„ fario, *v.* Ansonii	Brown Trout[b]	
„ fontinalis	American Trout[b]	

HAPLOCHITONIDÆ (Grayling Family).

Prototroctes maræna	*Cucumber Mullet*[b] *or Grayling*	This fine little fish is the most delicious of our freshwater fish. It is found abundantly in the Mersey and northern and western rivers. Affords excellent sport to anglers.

GALAXIDÆ (Jolly-tail Family).

Galaxias truttaceus	*Spotted Trout*[a]	Small fish, very abundant in all our streams. Excellent for the table, and caught readily by rod and line.
„ attenuatus	*Jolly Tail*[a]	
„ auratus	*Golden Trout*[c]	Largest form, Lake Sorell.

SCOMBRESOCIDÆ (Gar Fish Family).

Hemirhamphus intermedius	*Gar Fish*[b]	Excellent fish for the breakfast table. Season, April–October.

CLUPEIDÆ (Herring Family).

Engraulis encrasicholus	*Anchovy*[b]	Enters estuaries in large numbers during summer.
Clupea sprattus	*Sprat*[b]	Great shoals, Aug-Nov.

No attempt has yet been made to utilise these valuable fishes, owing to the absence of appliances and to the lack of enterprise in the shape of fish-curing establishments.

MURÆNIDÆ (Eel Family).

Anguilla Australis	*Common Eel*[a]	No proper appliances exist for the capture of these valuable fish.
Conger vulgaris	*Conger*[a]	Valuable market fish, sometimes attains a weight of 40 lbs.

Sharks of various kinds are abundant, and although the smaller forms, such as Mustilus, are edible, they are not utilised as food.

Galeus canis (Dog Fish) is captured largely in certain localites, and the liver is boiled down for oil. The fishermen also largely use the flesh of "Gummies" and "Dog Fish" as bait for the deep-sea Trumpeter fishing.

The following is a classified synopsis of all the known Fishes of Tasmania, embracing 65 families, 145 genera, and 213 species :—

SYNOPSIS of Tasmanian Fishes of kinds.

Family.	Genera.	Species.	Examples.
	Sub-class TELEOSTEI.		
Percidæ	12	13	Red Perch, Native Salmon
Squamipinnes	1	1	Scorpis
Mullidæ	1	1	Red Mullet
Sparidæ	4	5	Bream, Schnapper
Hoplognathidæ	1	1	Hoplognathus
Cirrhitidæ	5	14	Carp, Perch, Trumpeter
Scorpænidæ	5	7	Gurnet, Soldier

Family.	Genera.	Species.	Examples.
Berycidæ	2	2	Nannegai
Kurtidæ	1	1	Pempheris
Sciænidæ	1	2	Maigre
Xiphiidæ	1	1	Swordfish
Trichiuridæ	2	4	Barracouta, King-fish
Carangidæ	5	8	Horse Mackerel, Snotgall
Cyttidæ	2	2	Bastard Dorey
Scombridæ	5	5	Mackerel, Pilot-fish
Trachinidæ	5	6	Cat-fish, Whiting
Pediculati	1	2	Hand-fish
Cottidæ	3	5	Flathead, Flying Gurnard
Gobiidæ	2	2	Goby
Gobiesocidæ	2	2	Gobiesox
Blenniidæ	6	8	Blenny, Bully
Sphyrænidæ	2	2	Jack, Pike
Atherinidæ	2	6	Sand-smelt, Silver Belly
Mugilidæ	2	2	Mullet, Sand Mullet
Centriscidæ	1	1	Snipe, or Trumpet-fish
Lophotidæ	1	1	Lophotes
Trachypteridæ	2	2	Ribbon Fish
Pomacentridæ	1	1	Rock Perch
Labridæ	4	13	Blue Head, Stranger, Parrot-fish
Gadopsidæ	1	1	Black Fish
Gadidæ	2	2	Rock Cod
Ophidiidæ	2	2	Ling
Macruridæ	2	2	Coryphæna
Pleuronectidæ	3	4	Sole, Flounder
Haplochitonidæ	2	2	Derwent Smelt, Freshwater Herring
Scopelidæ	1	1	Alepidosaurus
Salmonidæ	2	5	Salmon, Whitebait
Galaxidæ	1	5	Spotted Trout, Jolly-tail
Scombresocidæ	1	1	Gar Fish
Cyprinidæ	2	3	Carp, Tench
Gonorhynchidæ	1	1	Sand Eel
Clupeidæ	2	3	Anchovy, Sprat
Synbranchidæ	1	2	Chilobranchus
Muræindæ	4	5	Common Eel, Conger
Pegasidæ	1	1	Sea-dragon
Syngnathidæ	5	9	Pipe-fish, Sea-horse
Sclerodermi	2	12	Leather Jacket, Trunk-fish
Gymnodontes	4	5	
Total Teleostei (49)	121	186	

Sub-class CHRONDROPTERYGII (Sharks and Rays).

SHARKS.

Chimæridæ	1	1	Elephant Fish
Carcharidæ	4	4	Blue Shark, Tope, Gummy
Lamnidæ	3	3	Porbeagle, Nurse, Thrasher
Notidanidæ	1	1	Tasmanian Blue Shark
Scyllidæ	3	4	Wobbigong
Cestracionidæ	1	1	Port Jackson Shark
Spinacidæ	1	2	Spiny Dog
Rhinidæ	1	1	Angel Shark
Pristiophoridæ	1	2	Saw-fish

RAYS.

Rhinobatidæ	1	1	The Fiddler
Torpedinidæ	1	1	Electric Torpedo
Rajidæ	1	1	Thorn-back Skate
Trygonidæ	1	1	Stingaree
Myliobatidæ	1	1	Whip-tail Ray
Total Sharks & Rays(14)	21	24	

Sub-class CYCLOSTOMATA.

Petromyzontidæ	2	2	Lamprey, Pouched Lamprey

Sub-class LEPTOCARDII.

Cirrostomi	1	1	Lancelet

SUMMARY.

Sub-class.	Families.	Genera.	Species.
Teleostei	49	121	186
Chrondropterygii	14	21	24
Cyclostomata	1	2	2
Leptocardii	1	1	1
Grand Total	65	145	213

Fishing Industry.

With a scattered and insulated population of 146,667 inhabitants, it cannot be expected that the fishing industry of Tasmania can be extensive. Nevertheless it is estimated that there are about 62 boats and 124 men engaged therein. The individuals employed hawking the fish within the two chief towns may be estimated at about 54 in number. Altogether it is estimated that, exclusive of the whaling trade, there are 890 persons directly depending upon the local fisheries. Hobart, the capital city, is the chief centre of the industry, its position being favourable in this respect from its proximity to the principal fishing-grounds, and its splendid harbour being accessible in all kinds of weather.

Fully 63 per cent. of the men and boats belong to Hobart, and the men carry on their vocation either in the numerous sheltered indentations or bays in the upper or lower waters of the estuary of the Derwent, or in the exposed open sea between Seymour on the north-east and Port Davey on the south-west. The fishing carried on elsewhere, with the exception of the purely river fishing of the Tamar, is very limited, generally engaged in at odd times by persons who do not devote themselves exclusively to the fishing industry. The Tamar boats are not suited for fishing in the open sea of Bass Straits.

With the exception of three or four decked smacks, the most of the boats employed in the waters of the Derwent, or in the open sea Trumpeter and Barracouta fishing-grounds, are mere open centre-board whaleboats, fitted with fish-wells perforated in direct communica-

tion with the sea, and designed to keep the fish alive until sold in the open market in the Fishermen's Dock, Hobart.* The Trumpeter and other fish will feed in such confinement, and the former has been known to live healthy in this way for a period of three months.

The average value of one of these excellent sea-boats† is about £100, and the equipment, in the shape of nets and deep-sea lines, say £20; in all, say £120 for each boat. There are usually three men to each boat. Even with a small crew of this kind as many as 40 dozen Kingfish, weighing 12 to 14 lbs. each, have been caught in a single night when the fish have been plentiful. Barracouta can be captured in large quantities during the season—January to June. About 24 dozen Barracouta weigh a ton. The fishermen state that, could they be assured of a market, 3*s*. per dozen for Barracouta or Kingfish would amply repay them,—*i.e.* about $\frac{1}{4}d$. a pound.

It is very difficult to estimate the value of fish sales, as no systematic register for the whole Colony has been kept hitherto. It is probable, since the decline of the Oyster fishery, that the yearly sales do not exceed £7000 per annum.

The value of boats and equipment at present engaged in the fishing industry of Tasmania may be roughly estimated at about £7700. This does not embrace the ships employed in the Whale fisheries. The latter industry has declined considerably during the last decade, as shown by the following summary:—

	Average per year, First Quinquennium.	Average per year, Second Quinquennium.
Ships	8	4
Tonnage	2385	1194
Men	221	101
Value of Oil	£15,932	£7925

The reason of this falling off is stated to be chiefly owing to the decline in price arising from the introduction of mineral oils. Excessive fishing and consequent scarcity of oil is also referred to as a cause of decline.

Fishing Grounds.

Generally, the Fishing Grounds may be divided into three classes:—1. The Home Grounds. 2. The Middle Grounds. 3. The Outer, or Open-sea Grounds.

1. *The Home Grounds*, near shore, or in the upper shallows of the estuaries of the Derwent and Tamar.—The fishing grounds at Port Sorell, Bridport, and George's Bay may be included within this division. The fish captured in these situations consist chiefly of Flounders, Mullet, Garfish, Flathead. Crayfish, Prawns, and Oysters are also taken in the Home Grounds.

* Salt water.

† Generally about 37 feet 6 inches long; beam, 7 feet 8 inches; depth, about 3 feet.

2. *The Middle Grounds.*—Within this division may be included those fishing reefs and banks lying in the more exposed situations of estuaries—such as Wedge Bay and Adventure Bay, in the Derwent—in depth of water from five to six fathoms. In such localities the grab-all net and ordinary hand-lines are used in the capture of Native Salmon, Silver Bastard, Black and Silver Perch, Carp, Rock Cod, Ling, Conger Eel, &c. The indentations around the Eastern and Western Coasts afford ample scope for following out the industry within the limits of this division, especially so in the many sheltered bays in the neighbourhood of Port Davey and Macquarie Harbour.

3. *The Outer, or Open-sea Grounds.*—These principally are situate in the southern and eastern waters of Tasmania, and generally from 1 to 16 miles off the coast, upon coral banks or reefs 10 to 80 fathoms deep. The latter depth is the limit at which Tasmanian Fishermen have been successful with deep sea-lines on the Trumpeter banks. Towards the service of these open waters the Maori jig is principally used in the capture of the Barracouta, and in the season the line, armed with swivelled chain and stout barbless hook, is employed in the capture of the rapacious but valuable Kingfish.

The fishermen, as a class, are as a rule steady and industrious, and although they do not seem to have any special provision in the shape of Friendly Societies or other providential aids, distress is rare and poverty unheard of. Beyond the provisions for acclimatisation and protection of the European Salmonidæ, and the establishment of Oyster beds for breeding purposes, and certain reserves for the protection of natural beds, Government hitherto have only found it necessary to provide measures for the limitation of the sale of unwholesome or under-sized fish.

In the case of the introduced Salmonoids, and as regards the Oyster and Flounder, special provisions have been made for their preservation and development in respect of close seasons, modes of capture, and the absolute or partial closing of particular areas as nursery grounds as a means of protection. This was absolutely necessary to ensure the successful acclimatisation of the Salmonidæ first introduced from Europe in the year 1864.

The fishes successfully introduced are *Salmo Salar*, *Salmo trutta*, *Salmo fario* var. *Aussonii*, *Salmo fontinalis*, *Tinca vulgaris*, *Cyprinus auratus*, *Cyprinus carrasius*, *Perca fluviatilis.*

Statistics relating to Animal Products.

Fur Trade.

Ruling prices at the date of the following :—

	Undressed.	Dressed.
Wallaby Skins ..... per doz.	3*s.* to 6*s.*	9*s.* to 12*s.*
Kangaroo Skins ..... per doz.	12*s.* to 24*s.*	20*s.* to 32*s.*
Opossum (Black) ..... per doz.	18*s.* to 60*s.*	24*s.* to 66*s.*
Ditto (Grey)..... per doz.	4*s.* to 12*s.*	10*s.* to 18*s.*
Tiger Cat Skins ..... per doz.	6*s.* to 24*s.*	12*s.* to 36*s.*
Native Cat Skins (Black) ..... per doz.	3*s.* to 9*s.*	7*s.* to 14*s.*
Ditto (Grey)..... per doz.	1*s.* to 4*s.*	5*s.* to 10*s.*
Native Tiger Skins (scarce) ... per doz.	36*s.* to 72*s.*	48*s.* to 84*s.*
*Rabbit Skins ..... per 1000	20*s.* to 27*s.* 6*d.*	
†Opossum Rugs, unfinished (Black).....	£6 to £12 each	
Ditto (Grey)	£3 to £5 each	
Ditto, finished (Black)	£9 to £30 each	
Ditto (Grey)	£4 10*s.* to £12 each	

* Rabbit Skins range from Kittens, valued at about ¼*d.* each, to first-class heavy winter skins, worth 2½*d.* each.

† Black Opossum Rugs are very rarely made from skins in the green state. The prices quoted are for tanned skins in all cases for rugs.

Fish sold in Hobart Fish Market during the year 1889.

	Quantity.	Price.			Value.		
		Max.	Min.	Average.	£	*s.*	*d.*
Fish.							
Barracouta ..... doz.	2227	12*s.*	3*s.*	5*s.* 6*d.*	615	11	0
Bream ..... ,,	1	18*s.*	18*s.*	18*s.*	0	18	0
Carp ..... ,,	103	4*s.* 6*d.*	3*s.*	3*s.* 6*d.*	18	9	0
Eels (Conger) ..... ,,	79	15*s.*	10*s.*	11*s.*	43	13	0
Ditto (Freshwater) ... ,,	100	2*s.*	2*s.*	2*s.*	10	0	0
Flathead ..... ,,	2871	1*s.* 3*d.*	1*s.*	1*s.*	146	3	6
Flounders ..... ,,	1609	6*s.* 6*d.*	5*s.*	5*s.* 3*d.*	426	17	6
Garfish ..... ,,	8165	9*d.*	4*d.*	4*d.*	140	13	6
Gurnet (Rock)..... ,,	88	3*s.* 9*d.*	3*s.*	3*s.* 4*d.*	14	13	4
Kingfish ..... ,,	—	—	—	—	—		
Ling ..... ,,	19	18*s.*	14*s.*	10*s.* 3*d.*	9	16	0
Mullet ..... ,,	2971	2*s.*	10*d.*	1*s.*	150	5	0
Mackerel (Horse) ..... ,,	193	1*s.* 6*d.*	1*s.*	1*s.*	10	8	3
Perch..... ,,	4047	5*s.*	3*s.* 6*d.*	4*s.* 5*d.*	894	1	4
Ditto (Red) ..... ,,	—	—	—	—	—		
Rock Cod ..... ,,	3550	2*s.*	1*s.* 6*d.*	1*s.* 11*d.*	350	9	0
Salmon (Native) ..... ,,	2764	1*s.* 6*d.*	8*d.*	9*d.*	110	12	7
Trumpeter (Real) ..... ,,	665	25*s.*	20*s.*	21*s.* 10*d.*	728	9	0
Ditto (Bastard)..... ,,	4033	6*s.*	4*s.*	5*s.*	1018	11	6
Trevally ... . ,,	55	3*s.* 6*d.*	2*s.*	2*s.* 6*d.*	6	19	0
Whiting	7	1*s.* 6*d.*	1*s.* 6*d.*	1*s.* 6*d.*	0	10	6
	33,547				4697	1	0
Crustaceans.							
Crayfish ..... score	2778	5*s.*	4*s.*	4*s.* 10¾*d.*	681	10	0
					£5378	11	0

Figures for 1890 not available.

Salmon and Trout Breeding Establishment.

	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Ova introduced from Europe...	...	...	80,000*	160,000*	...	...	400,000*	...	...
Ova exported to other Colonies..	24,000	17,000	2000	7500	13,000	12,000	6000	...	...
Salmon Fry liberated in various Rivers, &c.....	3950	6600	8650	31,229[d]	116,200	33,880	9000	7850	7340
Licences (season) issued.....	353	362	411	431	396	417	420†	...	...
Receipts from Sales of Ova and Licences...	297	266	216	253	263	269	258	246	214
Working Expenses	277[a]	319	355[b]	465[c]	341	296	437	388	384

* *Salmo salar.* † In addition there were several weekly licences issued.

[a] Exclusive of £100 for importation of ova.

[b] Exclusive of £460 for importation of ova from England.

[c] Includes £170, special repairs to troughing.

[d] Includes 28,129 fry of *S. salar, ex* ova per *Yeoman,* from Ireland, hatched at the Plenty.

General Fisheries Department.

	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889	1890.
Receipts	...	...	...	...	...	...	...	246	214
Working Expenses	...	...	...	935	...	1369	677	388	384

[e] Also includes Salmon and Trout Breeding Establishment.

Whale Fisheries.

Year.	Vessels employed.		Tonnage.	Value of Fisheries.	Remarks.
	Ships.	Boats.			
				£	
1828.....	3	23	...	11,268	In 1822, 724 tuns oil and 3 tons whale fins were exported. In 1823, 226 casks of oil and 52 pkgs. whalebone were exported.
1829.....	7	26	...	12,313	
1830.....	10	42	...	22,065	
1831.....	9	55	...	33,549	
1832.....	12	75	...	37,176	
1833.....	15	105	...	30,620	
1834.....	23	84	...	56,450	
1835.....	35	155	...	64,858	
1836.....	14	48	1187	57,660	
1837.....	18	75	2739	135,210	
1838	19	79	1999	98,660	
1839.....	26	...	3146	65,600	
1840.....	27	...	3224	66,850	
1841.....	22	...	3170	71,600	
1842.....	18	...	2842	87,400	
1843.....	21	...	3307	74,100	
1844.....	24	...	4264	49,840	
1845	28	...	4460	73,300	
1846.....	28	...	4057	65,150	

Foreign.	
Ships.	Tonnage.
12	3838
16	5518
13	4825

WHALE Fisheries—*continued.*

Year.	Vessels employed.		Tonnage.	Value of Fisheries.	FOREIGN.	
	Ships.	Boats.			Ships.	Tonnage.
				£		
1847	27	...	4729	70,000	21	6890
1848	29	...	6081	104,000	26	8497
1849	34	...	7791	46,117	11	3803
				Oil exported.		
1850	40	...	9724	49,547	9	2779
1851	26	...	6538	49,022	14	4687
1852	18	...	3999	36,776	18	6300
1853	7	...	1903	30,106	2	704
1854	6	...	1622	27,863	2	737
1855	17	...	3566	44,110		
1856	33	...	6975	53,670		
1857	...	...	...	46,211		
1858	...	...	...	49,878		

Year.	Vessels.	Tonnage.	Value of Oil Exported.	No. of Men.
			£	
1859	...	...	63,500	...
1860	...	...	57,350	...
1861	...	...	60,230	...
1862	...	...	60,730	...
1863	...	...	30,175	...
1864	...	...	19,925	...
			Produce brought into Port	
1866	9	2257	38,000	229
1867	10	2428	22,800	245
1868	16	3996	52,546	395
1869	17	4364	48,910	415
1870	15	3446	35,880	376
1871	19	4917	46,350	470
1872	19	4917	27,420	488
1873	18	4765	44,000	444
1874	16	4088	30,780	389
1875	13	3525	12,465	315
1876	13	3525	41,740	315
1877	12	3295	31,605	324
1878	11	3156	16,920	321
1879	11	3156	13,425	326
1880	10	2780	12,045	296
1881	10	2780	22,120	296
1882	8	2357	19,096	196
1883	7	2014	14,685	168
1884	6	1745	11,715	151
1885	7	2014	12,600	167
1886	5	1480	6150	124
1887	4	1151	10,450	99
1888	3	783	6165	70
1889	2	546	4260	46
1890	2	546	5560	48

CLASSIFICATION OF ANIMALS AND PLANTS.

TABULAR List of the Principal Divisions of Animals and Plants.

Animals.

Sub-Kingdom.	Class.	Order or Sub-Class.	
A.			PROTOZOA—Animalcules.
	I.		RHIZOPODA.
		1	*Foraminifera*—Foraminifers.
		2	*Radiolaria*—Radiolarians.
		3	*Heliozoa*—Sun-Animalcules.
	II.		INFUSORIA.
		1	*Flagellata.*
		2	*Ciliata.*
	III.		GREGARINIDA.
B.			PORIFERA—Sponges.
	I.		*Myxospongia*—Gelatinous Sponges.
	II.		*Cerasapongia*—Horny Sponges.
	III.		*Halicliondriæ*—Fibro-siliceous Sponges.
	IV.		*Hyalospongia*—Glassy Sponges.
	V.		*Calcispongia*— Calcareous Sponges.
C.			CŒLENTERATA—Zoophytes.
	I.		HYDROZOA—Jelly-fishes and Polypes.
		1	*Hydromedusæ*—Hydra.
		2	*Scyphomedusæ.*
		3	*Siphonophora*—Portuguese Man-of-war.
		4	*Hydrocorallinæ*—Millepora.
		5	*Graptolitidæ*—Graptolites.
	II.		ACTINOZOA—Corals and Sea-Anemones.
		1	*Alcyonaria*—Sea-Pens, Red Corals, Soft Corals.
		2	*Zoantharia*—Sea-Anemones, Madrepores.
		3	*Rugosa*—Palæozoic Corals.
	III.		CTENOPHORA—Venus's Girdle.
D.			ECHINODERMATA—Star-fishes, Sea-Urchins, &c.
		1	*Blastoidea*—Pentremites.
		2	*Cystoidea*—Cystideans.
		3	*Crinoidea*—Feather-stars, Crinoids, and Stone-lilies.
		4	*Asteroidea*—Star-fishes.
		5	*Echinoidea*—Sea-urchins.
		6	*Holothuroidea*—Sea-slugs.
		7	*Ophiuroidea*—Brittle-stars.
E			VERMES—Worms.
		1	*Enteropneusta*—Balanoglossus.
		2	*Turbellaria*—Ribbon-worms, Turbellarians.
		3	*Nemertea*—Nemerteans.
		4	*Trematoda*—Flukes.
		5	*Cestoidea*—Tape-worms.
		6	*Nematoidea*—Round-worms and Thread-worms.
		7	*Acanthocephala*—Echinorhynchus.
		8	*Chætognatha*—Sagitta.
		9	*Chætopoda*—Earth-worms and Marine Annelids.
		10	*Hirudinea*—Leeches.

Sub-Kingdom.	Class.	Order or Sub-Class.	
			VERMES—*continued*.
		11	*Gephyria*—Spoon-worms.
		12	*Rotifera*—Wheel-animalcules.
F.			ARTHROPODA.
	I.		CRUSTACEA.
		1	*Entomostraca*—Water-fleas.
		2	*Malacostraca*—Crabs, Lobsters, and Shrimps.
		3	*Gigantostraca*—King-crabs, Trilobites, &c.
	II.		ARACHNIDA—Spiders, Scorpions, and Mites.
		1	*Linguatulida*.
		2	*Acarina*—Mites and Ticks.
		3	*Pyenogonida*—Sea-spiders.
		4	*Tardigrada*—Bear-animalcules.
		5	*Araneida*—Spiders.
		6	*Phalangidæ*—Harvest-men.
		7	*Pedipalpi*—Tarantulas.
		8	*Scorpionidea*—Scorpions.
		9	*Pseudoscorpionidea*—Book-scorpions.
		10	*Solifugæ*.
	III.		PROTOTRACHEATA—Peripati.
	IV.		MYRIOPODA.
		1	*Chilopoda*—Centipedes.
		2	*Chilognatha*—Millepedes.
	V.		INSECTA.
		1	*Thysanura*—Spring-tails.
		2	*Orthoptera*—Grasshoppers, Crickets, Cockroaches, Earwigs, Termites, &c.
		3	*Neuroptera*—Dragon-flies, &c.
		4	*Strepsiptera*—Bee-parasites.
		5	*Rhynchota*—Cicadas, Bugs, &c
		6	*Diptera*—Flies.
		7	*Lepidoptera*—Butterflies.
		8	*Coleoptera*—Beetles.
		9	*Hymenoptera*—Bees and Wasps
G.			MOLLUSCA—Shell-fish.
	I.		LAMELLIBRANCHIATA (Pelecypoda) Bivalves.
	II.		SCAPHOPODA—Elephant's Tusk-shells.
	III.		GASTEROPODA—Univalves.
	IV.		PTEROPODA—Pteropods.
	V.		CEPHALOPODA—Nautili, Cuttle-fishes, &c.
H.			MOLLUSCOIDA.
	I.		BRYOZOA.
	II.		BRACHIOPODA—Lamp-shells.
I.			TUNICATA—Ascidians.
J.			VERTEBRATA.
	I.		ACRANII—Amphioxus.
	II.		PISCES—Fishes.
		1	*Marsipobranchii*—Lampreys and Hags.
		2	*Elasmobranchii*—Sharks, Rays, and Chimæras.
		3	*Ganoidei*—Ganoid Fishes.
		4	*Teleostei*—Bony Fishes.

Sub-Kingdom.	Class.	Order or Sub-Class.	
	III.		DIPNOI—Ceratodus.
	IV.		AMPHIBIA—Frogs, Toads, Newts, and Salamanders.
	V.		REPTILIA—Reptiles.
		1	*Ophidia*—Snakes.
		2	*Lacertilia*—Lizards.
		3	*Crocodilia*—Crocodiles.
		4	*Chelonia*—Tortoises and Turtles.
		5	*Proterosauria* }
		6	*Thecodontia* }
		7	*Dinosauria* }
		8	*Ornithoscelida* } Extinct Reptiles.
		9	*Pterosauria* }
		10	*Enaliosauria* }
	VI.		AVES—Birds.
		1	*Carinatæ.*
		2	*Ratitæ.*
	VII.		MAMMALIA—Mammals.
	a.		Aplacentalia :
		1	*Monotremata*—Platypus and Echidna.
		2	*Marsupialia*—Marsupials.
	b.		Placentalia :
		1	*Non-Deciduata*—Ant-eaters, Sloths, and Armadillos, Whales, Hoofed Quadrupeds.
			Deciduata—Elephants, Rodents, Carnivores, Bats, Lemurs, Apes, Man.

Plants.

A.			THALLOPHYTA.
	I.		PROTOPHYTA—Yeast-plant, Bacteria, &c.
	II.		LYGOSPOREÆ—Desmids, Diatoms, Moulds.
	III.		OOSPOREÆ—Fucoids, Conferoids, &c.
	IV.		CARPOSPOREÆ—Red Sea-weeds, Stone-worts, Lichens, Fungi, &c.
B.			MUSCINEÆ.
	I.		HEPATICEÆ—Liver-worts.
	II.		MUSCI—Mosses.
C.			VASCULAR CRYPTOGAMS.
	I.		EQUISETINEÆ—Horse-tails.
	II.		FELICINEÆ—Ferns, &c.
	III.		DICHOTOMEÆ—Club-mosses.
D.			PHANEROGAMS.
	I.		GYMNOSPERMS—Conifers and Cycads.
	II.		ANGIOSPERMS—Ordinary Flowering Plants.
		1	*Monocotyledons.*
		2	*Dicotyledons.*

CHAPTER VIII.

Population.

THE Population of Tasmania on 31st December, 1890, was estimated as follows:—

	No.	Per cent.
Males	76,843	52·88
Females	68,447	47·12
Persons	145,290	100·00

This shows an increase as compared with the previous year of 1646 males, 1467 females, and 3113 persons, or a total increase for the year of 2·18 per cent. Of the total increase 2695, or 86·57 per cent., was due to natural causes, *i.e.*, excess of births over deaths; and 418, or 13·43 per cent., was due to the excess of immigration over emigration.

The following abstract shows the progress made during the last 40 years:—

PROGRESS of Population since 1850.

	Population on 31st Dec.	Average (+) Increase, or average (−) Decrease per year, during the year or period of Five Years.			Percentage of yearly + Increase or − Decrease.
		Due to natural causes.	Migration.	All causes.	
1850	71,742	—	—	—	—
1855	69,962	+ 758	—1114	— 356	—0·50
1860	87,775	+1669	+1894	+3563	+5·09
1865	95,201	+1698	— 213	+1485	+1·69
1870	100,765	+1551	— 438	+1113	+1·17
1875	105,484	+1451	— 871	+ 580	+0·57
1880	114,762	+1634	+ 586	+2220	+2·14
1885	129,267	+2327	+ 114	+2213	+1·74
1886	131,616	+2651	+ 302	+2349	+1·81
1887	135,988	+2575	+1797	+4372	+3·32
1888	138,346	+2741	− 383	+2358	+1·72
1889	142,177	+2659	+1172	+3831	+1·74
1890	145,290	+2695	+ 418	+3113	+2·18
25 years ending 1875	...	...	...	...	+1·56
15 years ending 1890	...	...	...	...	+2·16
40 years ending 1890	...	...	...	...	+1·78
5 years ending 1890	...	...	...	...	+2·42

From the preceding table it will be seen that the progress of Population was slow and fluctuating during the twenty-five years ending in the year 1875,—only averaging, on the whole, an increase of 1·56 per cent. per year. For the last 15 years, however, there has been steady progress, and the average increase per year rose to 2·16 per cent.;

and this progress is still more marked during the last five years by the yearly increase rising to an average of 2·42 per cent., which, if continuous in the future, will double the population in 28·99 years.

The Population of Australasia as a whole has increased from 426,197 to 3,791,790 during the last 40 years, that is, an increase of 3,365,573, or a continuous yearly rate of 3·36 per cent., or doubling the population in a period of 20·97 years.

The causes which chiefly operated against the progress of population in Tasmania in the period 1850 to 1875—especially the first five years—was the discovery of the rich gold-fields in Victoria about the years 1851–3. Owing to this great attraction immense numbers of persons from all parts of the world flocked to the new El Dorado of the Southern Hemisphere. Tasmania, from its proximity to Victoria, was most specially affected, and a partial exodus of the population, with flocks and herds, at once began, and continued in a lessening degree for many years after. The renascent period in Tasmania may be said to have begun when, in the year 1871, the important discovery of tin at Mount Bischoff by Mr. James Smith drew the attention of the people to the investigation of the rich mineral resources within the Colony. The investigations of explorers were soon rewarded, for soon after other rich tin deposits in the North-east were discovered; and, at the same time, gold was obtained in payable quantities in several districts, notably at the Black Boy, Nine Mile Springs, and Beaconsfield.

Following upon these important disclosures came the discovery of tin, gold, bismuth, lead, silver, antimony, coal, iron, lime, and other important minerals in various parts of the Island; and, recently, the discovery of extraordinary rich deposits of silver at Mount Zeehan, Heazlewood River, and Mount Dundas promises to contribute very largely to the growing prosperity of the Colony. The knowledge that the Colony possessed such vast stores of natural resources also had an important influence in promoting its development in other directions. The Government were encouraged to enter upon an extensive scheme of railways and other public works necessary to open up the Crown lands and to promote settlement, with the effect that, whereas in 1871 there were few roads and no railways, in the year 1890 there were 5659 miles of roads and 463 miles of railway. Within the same time a sum of about £4,921,991 was expended in this direction. To these combined causes must be ascribed the more rapid progress of population during the last few years as compared with the earlier period already referred to.

Surplus of Birth-rate over Death-rate.

The following table shows the surplus of birth-rate over death-rate in Tasmania during the twelve years ending with the year 1890:—

Year.	Annual Birth-rate per 1000 Persons living.	Annual Death-rate per 1000 Persons living.	Surplus of Birth-rate over Death-rate per 1000 Persons living.
1879	32·04	15·18	16·86
1880	32·90	16·17	16·73
1881	33·65	14·88	18·79
1882	33·84	15·98	17·86
1883	34·84	17·36	17·48
1884	36·52	15·88	20·64
1885	36·18	15·89	20·29
1886	35·47	15·15	20·32
1887	35·40	16·15	19·25
1888	34·83	14·84	19·99
1889	33·92	14·96	18·96
1890	33·49	14·74	18·75
Mean for Twelve years	34·42	15·63	18·83

The surplus of births over deaths during the last twelve years is equal to 18·83 *per* 1000 *persons living*. This factor is a most important one, as in itself it is a very sensitive index of the health, vigour, and prosperity of the people, whether due to the absence of virulent diseases, the increase of the general health, or the relative increase of the numbers of the young and vigorous as compared with the old and feeble. As regards the last seven years, it is satisfactory to note that the analysis of the causes producing the extraordinary surplus shows that it is due to a combination of all the beneficial influences, *i.e.*, a relatively high birth-rate for Tasmania, indicating prosperity, or an increase in the relative numbers of the young and vigorous in the population as compared with the aged, together with a comparatively low death-rate, indicating a healthy year.

Since the last temporary exodus from Tasmania, upon the discovery of the gold fields in Victoria in 1853, the proportion of aged persons over 60 was abnormally high; and this fact alone was sufficient to explain the relative low birth-rate as compared with the Colonies of Queensland and New South Wales, where, on account of the greater expanse of territory, the lower density of population, and the consequent greater attraction offered to immigrants, the birth-rate has been considerably higher.

Rate of Natural Increase in various Countries.

In England, owing principally to the much higher death-rate, the surplus of Births over Deaths has only averaged 11·1 per 1000 persons during the 10 years ending 1888.

It is of considerable interest to observe the wide difference even among the most highly cultured nations as regards the rate of increase arising out of the variations in their respective birth-rates and death-rates. The following table not only shows the average birth-rate and death-rate in various countries, but also the direct effect upon the

growth of the population in the respective countries from the surplus of the births over deaths:—

States.	Persons per square mile.	Percentage Persons living over 60 years of age. (Census 1881.)	Annual Birth-rate per 1000 Persons living.	Annual Death-rate per 1000 Persons living.	Surplus of Birth-rate over Death-rate per 1000 Persons living.
Europe—					
Norway..... 1889	16·0	...	29·7	17·4	12·3
England and Wales ..... „	494	7·5	30·5	17·9	12·7
German Empire „	234	...	36·5	23·8	12·7
Prussia ..... „	...	...	37·2	23·2	14·0
The Netherlands „	...	...	33·2	20·1	13·1
Sweden 1888	28	...	28·8	16·0	12·8
Denmark 1889	149	...	31·3	18·6	12·7
Belgium..... „	518	...	29·5	19·1	10·4
Austria ..... „	206	...	37·9	27·3	10·6
Spain ..... „	87	...	...	...	...
Italy ..... „	262	...	37·3	24·9	12·4
Switzerland..... „	190	...	27·6	20·3	7·3
Hungary.....1888	1·39	...	43·4	31·7	11·7
France 1889	1·87	...	23·0	20·5	2·5
Australasia—					
New Zealand 1890	6·04	2·72	29·22	9·58	19·64
South Australia „	·36	4·13	32·54	12·24	20·30
New South Wales „	3·61	4·31	35·56	12·90	22·66
Queensland..... „	·63	1·87	37·15	13·60	23·55
Western Australia ..... „	·04	5·12	34·60	11·97	22·63
Tasmania ..... „	5·54	8·04	33·49	14·74	18·75
Victoria ..... „	12·90	4·65	33·59	16·10	17·49
Mean for Australasia ..... „	1·21	...	33·68	13·38	20·30
Ditto for 13 European Countries	...	...	32·7	21·6	11·1

Notwithstanding the variation between the extremes, it will readily be observed that the surplus of births over deaths in each group continues to be very much higher in the young Colonies of Australasia than in the older States of Europe. Why this is so is a problem depending upon exact knowledge of the combinations of ever-varying influences, among which may be enumerated—climate; racial vitality; relative longevity; density of population; disease; war; social morality; immigration; imperfect or varying modes of registration. In varying degrees, one and all of these influences are constantly in operation, but it would be a difficult matter to measure the effect of most of them with any degree of satisfaction. The condition of France stands out in a most remarkable manner in contrast with all countries in its exceptionally low birth-rate.

It is also of interest to note that a *low death-rate*, whether due to climate, sanitary provision, or racial vitality, has, if anything, a greater

influence in producing a high surplus of births over deaths than even a high birth-rate.

The very much larger surplus of births over deaths in the Colonies is mainly due to three great causes—viz. (1) the small percentage of persons living over 60 years of age (Tasmania alone excepted) directly lessening the death-rate and increasing the birth-rate; (2) the prevailing favourable climate; (3) the low density of population. Why the surplus of births over deaths appears lower in Tasmania than in some of the neighbouring Colonies is explained satisfactorily by the extraordinarily large percentage of persons living over 60 years of age—viz., 8·04 per cent.

Further particulars relating to population are given in the following comparative table:—

PROGRESS of Population in Australasian Colonies by Decenniads since 1850.

	Area, square Miles.	Population.				
		1850.	1860.	1870.	1880.	1890.
	Actual.			Numerical.		
Victoria	87,884	76,162	537,847	726,599	860,067	1,133,266
New South Wales	310,700	189,341	348,546	498,659	741,893	1,121,860
Queensland	668,497	...	28,056	115,567	226,077	392,965
South Australia	903,690	63,700	124,112	183,797	267,573	324,101
Western Australia	1,060,000	5886	15,000	24,785	29,019	48,626
Tasmania	26,215	70,571	87.775	100,765	114,762	145,290
New Zealand	104,471	22,108	79,711	248,400	484,864	625,662
Australasian	3,161,457	427,768	1,221,047	1,898,572	2,724,255	3,791,770
	Relative.			Per square mile.		
Victoria	3⅓	0·87	6·12	8·26	9·78	12·89
New South Wales	12	0·61	1·12	1·60	2·39	3·61
Queensland	25½	...	0·04	0·17	0·34	0·59
South Australia	34	0·07	0·14	0·20	0·30	0·36
Western Australia	40	...	0·01	0·02	0·02	0·04
Tasmania	1	2·69	3·35	3·84	4·38	5·54
New Zealand	4	0·21	0·76	2·38	4·64	5·99
Australasian	120½	0·13	0·39	0·60	0·86	1·20
Total Annual Rate of Increase	...	7·33	8·57	4·51	3·68	3·36

Tasmania is by far the smallest Colony in the group, being only about a twelfth part of the size of New South Wales, and about $\frac{1}{120}$th the size of Australasia. In density of population (5·54 per square mile), however, she stands third, being 1·93 persons per square mile above New South Wales; and, although only $\frac{1}{12}$th part of the size of that Colony, her population bears to it the proportion of about $\frac{1}{7}$th, or about $\frac{1}{25}$th of the total population of Australasia.

Racial Composition.

Racial Composition of the Population of Tasmania.

So far as the place of birth gives evidence regarding racial composition, the following summary taken from the last two Censuses (1881, 1891) may be of interest:—

Birth Places.	Per cent. to Total Population.		
	Persons.		Adults.
	1881.	**1891.**	**1891.**
Tasmania	69·13	73·88	55·78
Other Australasian Colonies	3·44	5·02	5·36
England and Wales	14·96	11·95	21·50
Scotland	3·24	2·63	4·96
Ireland	6·21	3·89	7·70
Other British Possessions	0·76	0·62	0·94
Foreign Countries	1·93	2·01	3·76
Not specified	0·33	—	—
Total	100·00	100·00	100·00

Practically, the proportion of births for each country is the only guide to the ultimate racial origin of the entire population.

Conjugal Condition in Tasmania (1891).

The following summary shows, relative to each age-group, the proportion of persons living under Conjugal conditions at the time of the last two Censuses :—

	All Ages.	Under 15.	15 to 20.	20 to 45.	45 and over.
Males—					
Married	29·00	—	0·04	48·16	68·16
Widowed	5·18	—	—	1·53	15·53
Never Married	67·82	100·00	99·96	50·31	16·31
Total	100·00	100·00	100·00	100·00	100·00
Females—					
Married	30·98	—	4·27	62·56	61·34
Widowed	5·72	—	0–01	3·02	31·73
Never Married	63·30	100·00	95·72	34·42	6·93
Total	100·00	100·00	100·00	100·00	100·00
Persons—					
Married	29·93	—	2·32	54·78	65·17
Widowed	4·38	—	—	2·22	22·65
Never Married	65·69	100·00	97·68	43·00	12·18
Total	100·00	100·00	100·00	100·00	100·00

PROPORTION of Women in Australasia between the Ages of 15 and 45 (reproductive period).

	Per cent. to Total Females.
South Australia, 1881	45·61
Victoria, 1881	45·41
New South Wales, 1881	45·08
Queensland, 1881	44·94
Tasmania, 1881	44·34
New Zealand, 1886	44·28
West Australia, 1881	43·99
Tasmania, 1891, (30,579)	44·27

OCCUPATIONS.

Occupations of the People in Tasmania.

At the last Census, taken on 5th April, 1891, Tables were prepared showing the proportions of the various classes of Occupations. Upon these proportions the following summary has been prepared showing the probable number of persons in each class :—

CLASS.	SUB. CLASS.	OCCUPATIONS.	NUMERICAL.			CENTESIMAL PROPORTION.					
						In relation to All Classes.			In relation to Breadwinners.		
			Persons.	Males.	Females.	Persons.	Males.	Females.	Persons.	Males.	Females.
		Divisions.									
		All Classes	146,667	77,560	69,107	100·00	100·00	100·00	238·83	158·84	549·43
		Breadwinners (I.–VI.)	61,411	48,833	12,578	41·87	62·96	18·20	100·00	100·00	100.00
		Dependants (VII.)	85,256	28,727	56,529	58·13	37·04	81·80	138·83	58·83	449·43
		Classes.									
I.		Professional	3918	2715	1203	2·67	3·50	1·74	6·38	5·56	9·56
II.		Domestic	7180	1429	5751	4·90	1·84	8·32	11·69	2·93	45·72
III.		Commercial	9593	8242	1351	6·54	10·63	1·96	15·62	16·88	10·74
	A	Property and Finance	1662	1147	515	1·13	1·48	·74	2·71	2·55	4·09
	B	Trade	4660	4034	626	3·18	5·20	·91	7·59	8·26	4·98
	C	Transport and Communication	3271	3061	210	2·23	3·94	·30	5·32	6·26	1·67
IV.		Industrial	16,016	14,194	1822	10·92	18·30	2·64	26·08	29·07	14·49
V.		Agricultural, Pastoral, Mineral, and other Primary Producers	23,568	21,686	1882	16·07	27·96	2·72	38·38	44·41	14·96
	A	Agricultural	16,031	14,584	1447	10·93	18·80	2·09	26·11	29·87	11·50
	B	Pastoral	2447	2040	407	1·67	2·63	·59	3·99	4·18	3·24
	C	Mineral	3988	3987	1	2·72	5·14	·00	6·49	8·16	·00
	D	Other Primary Producers	1102	1075	27	0·75	1·39	·04	1·79	2·20	·21
VI.		Indefinite	1136	567	569	0·77	·73	·82	1·85	1·16	4·52
VII.		Dependants	85,256	28,727	56,529	38·13	37·04	81·80	138·83	58·83	449·43

Thus, of the total Population it is estimated that 61,411, or 41·87 per cent., are breadwinners, and 85,256, or 58·13 per cent., dependants, chiefly consisting of children and wives not engaged beyond the duties of the home circle. Of the 61,411 breadwinners, 48,833, or 79·52 per cent., are males, and 12,578, or 20·48 per cent., are females.

The dominant class in Tasmania, as in the neighbouring Colonies, is engaged in Agriculture.

PROPORTIONS of the Five principal Classes of Breadwinners in various Countries compared.

Percentage to Total Population.

	Population last Census 1 = 1000.	Professional.	Domestic.	Commercial.	Industrial.	Agricultural.	Total of Five Classes.
United Kingdom—							
England and Wales	26,094	2·4	6·9	3·7	24·5	5·3	42·8
Scotland	3735	2·6	4·7	3·5	24·4	7·0	42·2
Ireland	5174	2·8	8·2	1·4	13·3	19·0	45·7
Total United Kingdom	35,003	2·7	7·0	3·3	23·0	7·5	43·5
Six Colonies of Australasia—							
Victoria	862	1·6	4·5	4·1	18·8	14·5	43·5
Queensland	213	1·4	5·0	5·1	18·3	15·7	45·5
South Australia	280	1·4	4·1	4·8	16·5	12·6	39·4
Western Australia	30	1·6	3·9	5·1	12·6	16·1	39·3
Tasmania	116	1·5	4·6	3·4	16·5	16·9	42·9
New Zealand	490	1·5	4·1	4·3	16·8	11·2	37·9
Total of Six Colonies	1991	1·5	4·4	4·4	17·7	13·7	41·7
United States of America	50,155	1·8	6·3	3·6	7·6	15·3	34·6
Prussia	27,279	2·1	3·2	3·3	13·0	17·0	38·6
France	37,321	1·8	6·3	4·2	12·0	18·0	42·3
Austria	22,144	1·9	4·0	2·0	10·0	28·0	45·9
Belgium	5520	3·0	9·0	4·4	17·2	14·6	48·2
India	250,891	1·3	1·1	1·4	14·6	28·0	46·2
Totals and Averages	433,304	1·6	3·0	2·3	13·3	23·2	43·4

It will be seen from this comparison that broadly there is a general agreement in the proportion which each class bears to the rest. The only abnormal proportions in the Industrial and Agricultural classes, as in the United Kingdom and India, are due to the special centralisation of Manufactures in the one country and Agriculture in the other. In all such cases the local creation is beyond the requirements of the local population. These five classes embrace on the average within 0·8 per cent of all breadwinners.

Ages.

Proportion of Persons living under each Age Group in Tasmania.

At the two last Censuses* the Proportions of Persons and Sexes living under each Age Group were as under:—

Age Group.	Persons.		Males.		Females.	
	1881.	**1891.**	**1881.**	**1891.**	**1881.**	**1891.**
All Ages Specified.	100·00	100·00	100·00	100·00	100·00	100·00
Under 5 years	14·03	14·69	13·34	14·08	14·81	15·38
5 to 65 „	81·09	80·71	80·28	80·33	82·01	81·11
65 and over	4·88	4·60	6·38	5·59	3·18	3·51
7 to 14 (school age)	16·70	16·74	16·02	15·93	17·46	17·64
20 „ 40 (soldiers' „)	26·73	31·29	25·94	32·05	27·64	30·42
15 „ 45	42·63	44·89	41·06	45·44	44·40	44·27
21 years and over (adults)	...	49·51	...	51·62	...	47·17
Under 5 years	14·03	14·69	13·34	14·08	14·81	15·38
5 to 10 „	12·34	13·28	11·94	12·83	12·79	13·78
10 „ 15 „	11·84	11·27	11·48	10·76	12·24	11·84
15 „ 20 „	11·58	9·51	11·00	9·19	12·24	9·87
20 „ 25 „	10·31	9·41	9·81	9·29	10·88	9·53
25 „ 30 „	6·91	9·12	6·85	9·44	6·99	8·77
30 „ 35 „	5·10	7·42	5·13	7·66	5·08	7·14
35 „ 40 „	4·41	5·34	4·15	5·66	4·69	4·98
40 „ 45 „	4·32	4·09	4·12	4·20	4·52	3·98
45 „ 50 „	4·05	3·36	3·97	3·34	4·14	3·39
50 „ 55 „	3·98	3·04	4·38	2·98	3·53	3·10
55 „ 60 „	3·08	2·55	3·56	2·51	2·55	2·58
60 „ 65 „	3·17	2·32	3·89	2·47	2·36	2·15
65 „ 70 „	2·01	1·68	2·55	1·94	1·41	1·40
70 „ 75 „	1·53	1·48	2·04	1·83	0·94	1·11
75 „ 80 „	0·78	0·82	1·05	1·03	0·49	0·58
80 „ 85 „	0·42	0·43	0·57	0·55	0·25	0·30
85 and over	0·14	0·19	0·17	0·24	0·09	0·12

* 3rd April, 1881; 5th April, 1891.

It will be observed that the numbers of persons living at the principal Age Groups 0—5, 5—65, and 65 and over preserve a fairly constant proportion, although in the Census of 1891 the Middle Age Group has gained somewhat in the direction of the normal proportion of older countries. The smaller groups show great variation, and (as indicated in former observations in relation to Vital Statistics), except at the Census year, they cannot be relied upon for determining with accuracy the death-rate for the smaller Age-Group divisions. The numbers living over 65 are proportionately much above the average of the other Colonies, as indicated by the following Summary:—

PROPORTION of Persons living under Principal Age Groups in various Countries.

Country.	0-5.	5-20.	20-45.	45-65.	65 and over.
Australasia (mean) 1881	14·43	35·10	34·77	13·15	2·55
Victoria ..... „	13·41	37·39	31·77	14·98	2·45
New South Wales ... „	14·84	35·14	36·26	11·30	2·46
Queensland ..... „	14·95	31·86	40·73	11·00	1·46
South Australia ..... „	14·89	34·60	37·27	10·90	2·34
Western Australia... „	13·91	34·66	32·04	16·90	2·49
New Zealand ..... „	15·01	36·40	34·34	12·44	1·81
Tasmania..... „	13·99	35·67	30·97	14·51	4·86
England and Wales . „	13·6	32·7	34·8	14·3	4·6
Scotland ..... „	13·7	33·0	34·2	14·1	4·9
Ireland..... „	11·1	34·7	32·2	15·6	6·2
France ..... „	9·2	26·1	36·1	20·5	8·1
United States 1880	13·4	33·8	36·3	13·0	3·5
Tasmania 1891	14·69	34·06	35·38	11·27	4·60
Ideal Life Table—Stationary Population *	9·02	24·48	36·04	21·56	8·90

* Institute of Actuaries Text Book, Part ii, pp. 494-496.

A more instructive analysis of the composition of the Population of various Countries under three important age groups, is contained in the following summary :—

THREE principal Age Groups in various Countries compared.

	Date of Census.	0-15.	15-45.	45 and above.*	Total.
Victoria	1881	39·87	43·60	17·43	100
New South Wales	1881	39·87	46·37	13·76	100
Queensland	1881	38·35	49·19	12·46	100
South Australia	1881	38·84	47·92	13·24	100
Western Australia.....	1881	38·32	42·29	19·39	100
New Zealand	1881	41·23	44·52	14·25	100
Tasmania.....	1881	38·11	42·52	19·37	100
Tasmania	1891	40·24	44·89	14·87	100
England.....	1881	36·40	44·80	18·80	100
Scotland.....	1881	36·56	44·33	19·11	100
Ireland.....	1881	35·04	43·07	21·83	100
France	1882	26·74	44·69	28·57	100
United States.....	1880	37·15	50·64	12·21	100
Highest.....	...	N. Zealand 41·23	U. States 50·64	France 28·57	100
Lowest.....	...	France 26·74	W. Australia 42·29	U. States 12·21	100
Ideal Life Table—Stationary Population	...	25·51	44·03	30·46	100

* These include a small percentage of unspecified ages.

The effect of the much larger natural increase in group 0-15 is at once seen in the Australasian group in comparison with the proportions living under the same group in older and more densely populated countries, especially so as regards France. Immigration and higher

natural increase have an important influence in swelling the 15-45 group, and thereby diminishing the relative proportions of the 45 and above group. This is specially noticeable in the case of the United States and New Zealand.

Emigration and a low rate of natural increase have the contrary effect upon these groups, as exemplified in the cases of France and Ireland.

RELATIVE Strength of the Australasian Male Population.

Per cent. to Total Males.

	Census Year.	Supporting Ages.		Dependent Ages.	
		15 - 65.	Soldier's Age, 20 - 40.	0 - 15.	65 and over.
Queensland	1881	37·04	63·20	33·13	1·53
South Australia	,,	35·10	61·06	36·54	2·34
New South Wales ...	,,	32·20	61·27	36·92	2·81
New Zealand	,,	29·24	58·95	38·56	1·92
Tasmania	,,	25·84	56·69	36·62	6·30
Tasmania	1891	32·05	56·74	37·67	5·59
Western Australia ..	1881	25·50	62·51	33·65	3·26
Victoria	,,	25·32	60·27	37·91	2·82

The relative number of males in each Colony at the vigorous and supporting ages places Queensland first and Victoria last as regards the Soldier's Age group, and Queensland first and Tasmania last as regards the whole group, 15-65, embracing those at supporting ages. The very high death-rate of children diminishing the proportion of the 0-15 group, together with the small number surviving over 65 years, are the main influences which give Queensland the doubtful advantage of the premier position as regards relative masculine strength. The abnormal number attaining extreme longevity in Tasmania is the chief cause of her inferior position in the relative number of males in the 15-65 age group. The number of males at soldier's age in Tasmania had increased considerably at the last Census taken on 5th April, 1891.

The males at the soldier's age in Australasia represented 16·47 per cent. of the total population at the Census 1881, and would represent a strength of about 624,500 effectives at the close of the year 1890.

DISTRIBUTION.

Distribution of Population in Tasmania.

The greater portion of the Population of Tasmania is distributed in the fertile low-lying areas along the northern and eastern sea-board; in the broad tract of fertile country within the watershed of the Tamar and its tributaries, whose chief centre is the City of Launceston in the north; and within the watershed of the Derwent and its tributaries, whose chief centre is the City of Hobart, the Capital, situated at the mouth of the estuary of the Derwent in the south.

There are only two centres which, in so small a population, may

be truly termed Urban Districts—viz., the Cities of Hobart and Launceston. Their relative proportions to the country townships and scattered agricultural settlements are shown in the following Summary for the Census years 1861, 1870, and 1881, and also for the current year 1890.

DISTRIBUTION of Population in Urban and Country Districts, 31st December, 1890.

	Area, sq. miles.	1861.	1870.	1881.	1890.
Numerical.					
Urban Group—					
City of Hobart*	1·98	19,449	19,092	20,704	24,671
City of Launceston	5·38	10,359	10,668	12,686	17,046
Total Urban Group	7·36	29,088	29,760	33,390	41,717
Country Districts	26,208	60,169	69,568	82,315	103,573
	26,215	89,977	99,328	115,705	145,290
Per Cental.					
Urban Group—					
City of Hobart	0·75	21·62	19·22	17·90	16·98
City of Launceston	2·05	11·51	10·74	10·96	11·73
Total Urban Group*	2·80	33·13	29·96	28·86	28·71
Country Districts	97·20	66·87	70·04	71·14	71·29
Total	100·00	100·00	100·00	100·00	100·00

* Exclusive of Suburbs.

On January 1st, 1891, Hobart, with Suburbs, is estimated at 33,140, or 22·81 per cent.

From the above analysis it will be seen that the metropolitan population of the chief city bears the proportion of 22·81 per cent. to the total population. This proportion is relatively much smaller than that of Melbourne, Sydney, or Adelaide, these centres being proportionately to their total population about equal to the aggregate of Hobart and Launceston taken together.

PER Cent. Proportion of Metropolitan to Total Population in Australasian Chief Cities.

	1861.	1881	1889.	1890.
Melbourne	25·89	32·81	41·01	42·61
Sydney	26·70	29·40	34·01	33·87
Adelaide	...	37·11	37·52	39·99
Hobart	...	23·55	23·14	22·81
Perth	...	19·60	20·60	18·24
Brisbane	...	14·57	18·11	21·75
Wellington	...	4·20	5·33	5·26

DISTRIBUTION of Population in Municipal, Police, and Registration Districts of Tasmania on 31st December, 1890, computed on the basis of the Census of 5th April, 1891.

MUNICIPAL AND POLICE DISTRICTS.		REGISTRATION DISTRICTS.	
Name.	Population.	Name.	Population.
Evandale	2050	Beaconsfield	2077
Fingal	3388	Fingal	3372
Launceston (City)	17,046	George Town	581
George Town	3573	Lefroy	916
Portland	1582	Launceston	21,116
Ringarooma	4756	Evandale	3231
Selby	5862	Portland	1584
Westbury	5220	Ringarooma	4738
		Westbury	3646
		Frankford	850
Total North-Eastern Division	43,477	...	42,111
Deloraine	5025	Deloraine	4867
Emu Bay	5544	Emu Bay	3964
Latrobe	3295	Waratah	1870
Mersey	11,343	Stanley	1610
Russell	1770	Montagu	297
		Mersey	4031
		Port Sorell	4452
		Port Frederick	2290
		Sheffield	2196
		Ulverstone	5680
Total North-Western Division	26,977	...	27,257
Bothwell	1241	Bothwell	1365
Campbell Town	1858	Campbell Town	2670
Green Ponds	1290	Green Ponds	1291
Hamilton	1731	Hamilton	1785
Macquarie	3963	Strahan	5378
Longford	4135	Longford	3299
Longford (South)	213	Oatlands	3840
Oatlands	3299		
Ross	809		
Total Midland Division	18,539		19,628
Brighton	2091	Brighton	2091
Carnarvon	740	Clarence	1053
Clarence	1714	Glamorgan	992
Glamorgan	994	Gordon	931
Glenorchy	1944	Hobart	33,136
Hobart (City)	24,671	Kingston	1150
New Town	4255	New Norfolk	4213

DISTRIBUTION of Population—*continued.*

MUNICIPAL AND POLICE DISTRICTS.		REGISTRATION DISTRICTS.	
Name.	Population.	Name.	Population.
Queenborough	2203	Port Cygnet	1546
Kingborough	2414	Ralph's Bay	283
New Norfolk	4214	Richmond	2537
Richmond	2159	Sorell	2067
Sorell	2067	Spring Bay	909
Spring Bay	909	Tasman's Peninsula	741
		Victoria	976
Total South-Eastern Division.	50,375	...	52,625
Franklin	5922	Southport	652
		Esperance	1262
		Franklin	990
		Geeveston	765
Total South-Western Division.	5922	...	3669
TOTAL FOR TASMANIA	145,290	...	145,290

Miscellaneous Particulars, Census 1891.

		Per cent. to Total.
Population, Total	146,667	
Ditto per square mile	5·60	...
Increase since last Census, 10 years, per cent	26·73	...
Males	77,560	52·88
Females	69,107	47·12
Males, 21 years and over	40,037	51·62
Males at soldier's age (20 to 40)	24,678	32·05
Females, 21 years and over	32,598	47·17
Persons, ditto ditto	72,635	49·51
Children at school age (7 to 14)	24,451	16·74
Dwellings—		
Total number (householders)	28,024	...
Dwellings per square mile	1·07	...
Ditto having one room, per cent.	...	8·38
Ditto having more than one room, ditto	...	91·62
Ditto under £20 rental, ditto	...	65·21
Ditto £20 and over, ditto	...	34·49
Ages—		
Under 5 years, per cent.	...	14·69
5 to 65 years, ditto	...	80·71
65 and over, ditto	...	4·60
Conjugal Condition—		
Married persons	43,717	29·93
Ditto males	22,318	29·00
Ditto females	21,399	30·98
Education—		
Read and write, all ages	101,748	70·26
Ditto, adults, ditto	61,804	87·06
Birth Places—		
Tasmania	...	73·88
Other Australasian Colonies	...	5·02
United Kingdom	...	18·47
Elsewhere	...	2·63
Breadwinners—		
Males	48,833	62·96
Females	12,578	18·20
Persons	61,411	41·87
Electors—		
Legislative Council	6750	...
Percentage to adult males	...	16·86
House of Assembly	30,817	...
Percentage to adult males	...	76·98

		Per cent. to Specified.	Per cent. to Total Population.
Religion—			
Church of England	76,082	54·01	
Church of Rome	25,805	18·32	
Methodists	17,150	12·18	
Presbyterians	9756	6·93	
Independents	4501	3·20	
Baptists	3285	2·33	
Other Christian Sects	3168	2·26	
Non-Christian Sects	1085	0·77	
Total specified	140,832	100·00	96·02
Undefined—			
Persons who "object" to state religion	4428	...	3·02
Others	1407	...	0·96
TOTAL	146,667	...	100·00

E W N Butcher Del:

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R M Johnston Direxit.

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AREA AND POPULATION OF BRITISH POSSESSIONS.

Including Countries under British Protectorate.

(* Indicates Year of Census.)

Country.	Area. Sq. Miles.	Population.	Persons per Square Mile.
Europe—United Kingdom :			
England and Wales 1891*	58,764	29,001,018	494
Scotland ..... ,, *	29,820	4,033,103	135
Ireland..... ,, *	32,531	4,706,162	145
Total United Kingdom ,, *	121,115	37,740,283	309
Gibraltar.....1890	2	18,275 [a]	9138
Malta ..... ,,	119	165,662 [a]	1392
Total Europe	121,236	37,924,220	313
Asia :			
Aden.....1889	66	34,710	526
Borneo, North..... ,,	27,500	175,000	6
Burmah, Upper 1886	190,500	5,000,000	26
Ceylon.....1887	25,365	3,000,000	118
Cyprus.....1888	3584	200,000	56
Hong Kong 1891*	30	221,441	7381
India, British [c] 1891*	944,489	220,490,980	233
Keeling Islands ..... [b]	9	506	56
Kurea Murea Isles ..... [b]	21	34	1·6
Labuan 1890	30	5853	195
Malacca, Native States... [b]	24,660	357,000	14
Port Hamilton .... [b]	6	2000	333
Perim 1889	7	150	21
Straits Settlements 1891*	1472	506,673	344
Total Asia	1,217,739	229,994,347	189
Africa :			
Ascension 1888	35	240	7
Basutoland ..... [b]	10,239	175,000	17
Bechuanaland and Stella-land ..... [b]	208,300	478,000	2·29
Cape Colony 1891*	221,311	1,525,739	7
Gambia 1890	69	14,150	205
Gold Coast Colony..... ,,	29,401	1,500,000	51
Lagos 1888	1069	200,000	187
Mauritius 1890	705	377,986	536
Natal ..... ,,	18,750	543,913	29
St. Helena ..... ,,	47	4222	90
Sierra Leone ..... ,,	3000	75,000	25
Tristan d'Acunha ..... [b]	45	102	2·2
Zululand ..... [b]	1800	50,000	28
Total Africa	494,771	4,944,352	10

[a] Exclusive of Military Population. [b] Latest ascertained estimate.
[c] Exclusive of Feudatory States : Area, 589,122 sq. miles ; Population, 1891, 64,123,230.

AREA and Population of British Possessions—*continued.*

Country.	Area Sq. Miles.	Population.	Persons per Square Mile.
North America:			
Bahamas 1890	4466	47,565	10
Barbados 1891*	166	182,322	1098
Bermudas ..... „	19	15,884	836
Canada, Dominion 1891*	3,406,542	4,829,411	1·42
Honduras, British 1888	7562	27,452	3·63
Jamaica 1890	4193	640,279	153
Leeward Islands ..... „	665	121,077	182
Newfoundland and Labrador 1889	162,000	197,335	1·22
Trinidad 1890	1754	198,230	113
Windward Islands ..... „	618	156,893	254
Total North America... ...	3,587,985	6,416,448	1·79
South America:			
Falkland Islands 1890	6500	1789	·28
Guiana, British 1891*	109,000	278,328 [d]	2·55
Total South America ...	115,500	280,117	2·43
Australasia:			
Victoria 1891*	87,884	1,140,405	12·98
New South Wales ..... „ *	310,700	1,134,307	3·65
Queensland ..... „ *	668,497	393,938	·59
South Australia ..... „ *	903,690	324,536	·36
Western Australia ..... „ *	1,060,000	49,835	·05
Tasmania ..... „ *	26,215	146,667	5·60
New Zealand ..... „ *	104,471	626,830	6·00
Fiji 1890	7740	125,682	16·24
New Guinea, British..... [b]	88,460	150,000	1·70
Total Australasia	3,257,657	4,092,200	1·26
Total British Possessions	8,794,888	283,651,684	32·25

[d] Exclusive of Aborigines.

AREA AND POPULATION OF FOREIGN COUNTRIES.

The following table shows the Area and Population of the principal Foreign Countries :—

AREA and Population of Foreign Countries.

States.	Estimated Area, Sq. Miles.	Year.	Population, estimated or ascertained.	Persons per Square Mile.
Europe—	In thousands.	Census*	In thousands.	
Austria-Hungary	240·3	*1890	41,171	171
Belgium	11·4	1889	6094	535
Denmark	14·1	*1890	2185	155
„ Colonies of	86·6	„	116	1
France	204·2	*1891	38,095	187
„ Colonies of	2814·3	[a]	30,520	108
German Empire	211·1	*1890	49,423	234
Greece	25·0	*1889	2187	87
Italy	114·4	1889	30,947	270
Luxemburg	1·0	1885	213	213
Montenegro	3·6	*1880	236	67
Netherlands	12·6	*1889	4549	360
„ Colonies of	766·1	1888	31,338	41
Portugal	34·0	*1891	4708	138
„ Colonies of	706·0	„	5390	8
Roumania	48·3	1887	5500	114
Russian Empire—				
Russia in Europe	2080·4	1887	95,834	46
„ Asia	6369·7	„	17,483	3
Total Russian Empire	8450·1	„	113,317	13
Servia	19·0	1890	2096	110
Spain	197·7	*1887	17,550	89
„ Colonies of	406·9	[a]	12,124	30
Sweden	170·9	*1889	4774	28
Norway	123·2	*1891	1999	16
Switzerland	15·9	1888	2918	183
Turkish Empire—				
Turkey in Europe	63·8	[a]	4790	75
„ Asia	729·2	[a]	16,134	22
„ Africa	398·9	[a]	1000	3
Bulgaria, including Eastern Roumelia	37·8	[a]	3154	83
Bosnia, Herzegovina, and Novibazar	23·6	[a]	1504	64
Samos	·2	[a]	41	20
Egypt	400·0	[a]	6817	17
Total Turkish Empire	1653·5	[a]	33,440	20
Total Europe	16,330·2	...	440,890	27

* These figures are taken from "The Statistical Year Book" of Canada for the year 1889.

[a] Last ascertained estimate.

AREA and Population of Foreign Countries—*continued.*

States.	Estimated Area, Sq. Miles.	Year.	Population, estimated or ascertained.	Persons per Square Mile.
Asia—	In thousands.	Census*	In thousands.	
China	1298	a	383,000	295
,, Dependencies	2882	a	21,180	7
Corea	82	a	10,528	127
Japan	148	1889	39,607	268
Persia	628	1881	7653	12
Siam	250	a	6000	24
Total Asia	5288	...	467,968	89
Africa—				
Abyssinia	129·0	a	3000	23
Liberia	14·3	a	1068	75
Madagascar	235·5	a	5000	21
Morocco	313·6	a	5000	16
Orange Free State	41·8	a	135	...
South African Republic	121·8	1889	610	4
Tunis	44·9	a	1400	31
Zanzibar	·6	...	240	400
Unknown Interior	5635·9	a	45,000	8
Total Africa	6535·4	...	61,453	9
America—				
Argentine Republic	1158·0	a	4200	4
Bolivia	772·5	1889	2300	3
Brazil	3218·1	1888	14,002	4
Chili	290·7	1890	2715	9
Colombia	331·4	a	3500	10
Costa Rica	23·2	a	207	9
Ecuador	248·4	1889	1220	5
Guatemala	46·8	1890	1960	31
Hayti	10·2	1887	960	94
Honduras	46·5	1889	432	9
Mexico	741·7	,,	11,633	16
Nicaragua	51·6	1888	283	5
Paraguay	92·0	*1887	329	4
Peru	454·7	a	2971	6
Salvador	7·2	1887	664	92
San Domingo	20·6	1888	610	30
United States	3603	*1890	62,622	17
Uruguay	73·5	1888	648	9
Venezuela	632·7	,,	2234	4
Total America	11,822·8	...	113,490	9
Oceania—				
Hawaii Islands	6·5	1888	87	13
Samoa	1·0	1889	36	36
Tonga	0·4	...	21	52
Total Oceania	7·9	...	144	18
Grand Total	39,984·3	...	1,083,945	27

POPULATION OF THE EARTH IN 1890.

The following is a statement of the Population of the Earth and the Lands of the Globe available for Occupation, according to the estimates of Mr. E. G. Ravenstein *:—

POPULATION.

	Total.	Per Square Mile.
Europe	380,200,000	101
Asia	830,000,000	57
Africa	127,000,000	11
Australasia	4,730,000	1·4
North America	89,250,000	14
South America	36,420,000	5
Total	1,467,600,000	31

AREA IN SQUARE MILES.

	Fertile Region.	Steppe.	Desert.	TOTAL.[a]
Europe	2,888,000	667,000	—	3,555,000
Asia	9,280,000	4,230,000	1,200,000	14,710,000
Africa	5,760,000	3,528,000	2,226,000	11,514,000
Australasia	1,167,000	1,507,000	614,000	3,288,000
North America	4,946,000	1,405,000	95,000	6,446,000
South America	4,228,000	2,564,000	45,000	6,837,000
	28,269,000	13,901,000	4,180,000	46,350,000

* The Statesman's Year Book, 1891.

[a] Exclusive of the Polar Regions (4,888,800 square miles), which have at present a population of about 300,000 souls.

CHAPTER IX.

Vital Statistics.

BIRTHS.

During the year 1890, the number of Births registered was 4813, of which 2466, or 51·24 per cent., were males, and 2347, or 48·76 per cent., females. Thus the males were in excess of females by 119, or 5·07 per cent.

The following abstract shows the comparison with the nine years previous in the Urban and Country Districts of Tasmania :—

Births in Urban and Country Districts of Tasmania, 1881–1890.

No. of Births.

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	Yearly Average.
Urban Districts—											
Hobart	887	917	951	1131	1103	1108	1057	1039	1054	1060	1031
Launceston	533	582	676	698	734	712	749	748	722	722	687
Total Urban Districts	1420	1499	1627	1829	1837	1820	1806	1787	1776	1782	718
Country Districts	2498	2544	2632	2749	2800	2807	2930	2990	2981	3031	2796
Total for Tasmania	3918	4043	4259	4578	4637	4627	4736	4777	4757	4813	4514
Birth-rate per 1000 of Mean Population	33·40	33·50	34·24	35·66	35·08	34·15	33·86	33·10	31·97	33·49	34·80

From the preceding table it will be observed that the total birth-rate is greater than that of the former year by 1·52 per 1000 persons, and less than the average of the last decade by 1·31 per 1000 persons. The increase over the first year of the decade is equal to ·09 births per 1000 persons living. The following is a comparative abstract of the birth-rates in the Australasian Colonies in the order of the highest birth-rates :—

Birth-rate in Australasia, 1890.

	Births per 1000 Persons living, 1890.	Density of Population, 1890.	Percentage of Ages over 60 to Total Population, 1881.
Queensland	37·15	0·63	1·87
New South Wales...	35·36	3·61	4·31
Western Australia.	34·60	0·04	5·12
Victoria.....	33·59	12·90	4·65
Tasmania	33·49	5·54	8·04
South Australia	32·34	0·35	4·13
New Zealand	29·22	6·04	2·72
All	33·68	1·21	—

It must be borne in mind that while the birth-rate in a particular country invariably increases with an improvement in its material condition, the absolute difference between different countries is not always to be taken as the measure of relative prosperity between them. In the earlier stages of young communities the absolute height of the birth-rate is greatly influenced by the proportion which the native-born of the population bear to the whole, and thus it almost invariably follows that in those Colonies where the native-born are fewer in proportion the birth-rate index is relatively high, and, conversely, where the native-born are proportionately more numerous the birth-rate is invariably low. This, in a large measure, is due to the circumstance that a population mainly composed of immigrants contains a larger proportion of adults and married persons in the full vigour of life. As a Colony becomes more settled the number of persons living between 20 and 50 bears a smaller proportion to the whole from the natural increase in numbers of the young and aged. Hence it may follow that the numbers born relative to parents may be high when the birth-rate per total population is low, and *vice versâ*. Therefore the older settlement and the larger proportion of persons over 60, combined with a relative density of population per square mile of area, are sufficient to account for the lower birth-rate in Tasmania and Victoria as compared with the younger or less densely populated sister Colonies of Australasia. The percentages in relation to population, however, are not now of much value, as they are based upon the proportions ascertained by the Census of 1881. Some of the differences are probably due to erroneous estimates of population, the extent of which can only be ascertained when the results of the Census (April 5, 1891) are known.

The following table shows the birth-rate in each separate division of the Colony :—

Birth-rate in various Districts of Tasmania, 1886–1890.

Districts.	Percentage of Persons living over 60 years of age.—(Census 1881).	Birth-rate per 1000 living Persons.				
		1886.	1887.	1888.	1889.	1890.
Urban Districts.....	9·19	36·76	35·60	32·55	31·37	32·88
Country Districts—						
North-Western Division	6·03	37·48	40·41	41·39	43·85	40·03
South-Western Division	7·05	34·52	31·85	32·63	33·70	37·74
North-Eastern Division..	5·99	32·38	31·66	34·04	31·24	33·70
Midland Division	8·66	30·33	27·34	28·91	27·10	26·44
South-Eastern Division..	8·90	29·45	31·00	28·69	25·83	32·71
All Tasmania.....	8·04	34·15	33·86	33·10	31·97	33·49

For many years the highest birth-rate has been in the Urban Districts. During the last few years, however, the Urban Districts have actually been surpassed by some of the Country Districts, and particularly by the District of the North-West, which has been showing rapid progress in material welfare during the last decade. There has been a very rapid increase indeed within the second and third groups during the last year—that is, in the South-Western and North-Western Divisions. Within the remaining Districts the birth-rate is much lower than in the two divisions first named; and it is noteworthy that in the Midland District the birth-rate is stationary or declining.

The very large birth-rate in the North-Western Division, 43·85, in 1889, is more due to an under-statement of population than to a greater relative proportion of births, as anticipated in statement made in Official Record for 1890. It must be borne in mind that, excepting at the time of census-taking, there are no means whereby the migration of population within each district can be ascertained; and hence the ordinary method of apportioning equally the excess of immigration over emigration on the basis of former population involves an element of error.

DEATHS.

The Deaths registered during the year 1890 numbered 2118, of which 1216, or 57·41 per cent., were males, and 902, or 42·59 per cent., were females.

The total number of Deaths during 1890 is absolutely 20 more than the previous year, and relatively (14·74 per 1000 persons living) is 1·82 per 1000 below the average of the last decade.

The following abstract shows the comparison with the nine years previous in the Urban and Country Districts of Tasmania :—

No. of Deaths.

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	Yearly Average.
Urban Districts—											
Hobart	638	683	785	708	741	718	804	715	699	699	719
Launceston	355	428	399	474	444	452	485	431	496	416	438
Total Urban Districts	993	1111	1184	1182	1185	1170	1289	1146	1195	1115	1157
Country Districts.	740	795	938	808	851	806	872	890	903	1003	861
Total for Tasmania	1733	1906	2122	1990	2036	1976	2161	2036	2098	2118	2018
Death-rate per 1000 of Mean Population*	14·88	15·98	17·36	15·88	15·89	15·15	16·15	14·84	14·96	14·74	15·56

*Corrected according to results ascertained by Census, 5th April, 1891.

Seasonal Influence.

The following abstracts show to what extent the varying conditions of each period of the year affect the death-rate, also the comparison with corresponding periods in previous year :—

Deaths per 1000 Persons living.

	1890.	1889.	1888.	1887.
Deaths registered 1st Quarter ending 31st Mar.	3·97	4·60	4·22	4·68
Ditto 2nd Quarter ending 30th June	3·99	3·33	3·86	4·00
Ditto 3rd Quarter ending 30th September	3·41	3·51	3·47	3·82
Ditto 4th Quarter ending 31st December	3·37	3·51	3·29	3·65
Yearly Rate	14·74	14·96	14·84	16·15

NUMBER and Percentage of Deaths occurring each Month during the Years 1886, 1887, 1888, 1889, and 1890.

Month.	DEATHS.											
	Quinquennial—1886-90.		Number.					Per Cent. to Yearly Total.				
	No.	Per cent. to Total.	1886.	1887.	1888.	1889.	1890.	1886.	1887.	1888.	1889.	1890.
January	1077	10·37	218	231	225	216	187	11·03	10·69	11·05	10·29	8·83
February	980	9·43	168	200	172	235	205	8·50	9·25	8·45	11·20	9·68
March	934	8·99	161	210	177	198	188	8·15	9·72	8·69	9·44	8·88
April	850	8·18	137	170	170	168	205	6·93	7·87	8·35	8·01	9·68
May	874	8·41	143	188	177	155	211	7·24	8·70	8·69	7·39	9·96
June	779	7·50	148	167	172	142	150	7·49	7·73	8·45	6·77	7·08
July	863	8·31	181	187	157	172	166	9·16	8·65	7·71	8·20	7·84
August	836	8·05	165	153	177	172	169	8·35	7·08	8·69	8·20	7·98
September	794	7·64	167	180	142	151	154	8·45	8·33	6·98	7·20	7·27
October	799	7·69	145	180	145	173	156	7·34	8·33	7·12	8·24	7·37
November	743	7·15	172	138	136	144	153	8·71	6·39	6·68	6·86	7·22
December	860	8·28	171	157	186	172	174	8·65	7·26	9·14	8·20	8·21
TOTAL	10,389	100·00	1976	2161	2036	2098	2118	100·00	100·00	100·00	100·00	100·00

PERCENTAGE to Total Deaths, according to Age, for each Month.

Month.	Under 5 Years.	5 Years and under 65.	65 years and over.
	1890.	**1890.**	**1890.**
January	40·11	36·36	23·53
February	44·89	27·31	27·80
March	42·02	34·05	23·93
April	29·76	38·05	32·19
May	26·54	42·18	31·28
June	34·00	32·67	33·33
July	24·70	41·57	33·73
August	29·59	40·82	29·59
September	26·62	37·66	35·72
October	27·56	41·03	31·41
November	30·72	39·87	29·41
December	31·61	40·23	28·16
Yearly Percentage	32·63	37·54	29·79

From these tables it can be seen that particular months have a specially marked influence upon the death-rate. Thus, the months January, February, and March, though indicating a higher death-rate for children, are favourable to health as regards more matured persons. Conversely, although May to July over a number of years seem to be the most trying months as regards old age, they would appear generally to be favourable as regards young lives.

Upon the whole, the following shows the order of the several months of the year as regards their influence upon the death-rate, beginning wirh the lowest :—

PERCENTAGE to Total Deaths in each Month for all Ages.

Mean of Five Years, 1886-90.

1. November	7·15	7. December	8·28
2. June	7·50	8. July	8·31
3. September	7·64	9. May	8·41
4. October	7·69	10. March	8·99
5. August	8·05	11. February	9·43
6. April	8·18	12. January	10·37

Thus, it appears that November is the healthiest month in the year; the least healthy being January, especially as regards infants.

Localities.

In the preceding tables comparisons of the varying effects of the seasons upon the death-rate were made. In the following tables may be traced in like manner the varying influence of Urban and Country localities upon the same during the years 1889 and 1890 in the order of the lower death-rate in the latter year.

DEATHS in Urban and Country Districts per 1000 persons living, for all Ages.

	1890.	1889.	1890.	
			Increase.	Decrease.
Country Districts—				
South-Western Division	9·99	9·95	0·05	...
North-Eastern Division	10·78	12·03	...	1·25
Midland Division	11·34	8·67	2·67	...
North-Western Division	11·36	10·58	0·78	...
South-Eastern Division	11·59	9·86	1·73	...
Total Country Districts.....	11·20	10·33	0·87	...
Urban Districts—				
Launceston	19·38	23·68	...	4·30
Hobart.....	21·35	21·87	...	0·52
Total Urban Districts	20·57	22·59	...	2·02
All Tasmania	14·74	14·96	...	0·22

Density of Population and Hygiene.

Except as an ideal standard of health, there is not much value in making comparisons between urban and country districts, because density of population is itself an important factor in raising the death-rate. If we examine the mean death-rate of urban and country districts during the year 1890, we find, after making due allowance for differences of age distribution, that the former indicated for ages under 65, 15·59 per 1000, and the latter, 8·70 per 1000; that is, a difference of nearly 79 per cent. This is an enormous difference in favour of country districts. It is true that the centralisation in the urban districts of the sick in hospitals, and of paupers and criminals from all parts of the country, artificially increases the death-rate of the former, and lessens that of the latter, to a much greater extent than happens in countries where hospitals and asylums are more generally distributed. Notwithstanding this, however, and while recognising on the average that the occupations of townspeople are more unhealthy than those of people living in country districts, and making due allowance for the important excess of the age element in urban districts, there is still a very great difference, which is difficult to account for satisfactorily in a young country; and while it is probable that the lower death-rate in country districts is not due to the relative superiority in artificial modes of sanitation as compared with urban districts, it is becoming evident that the closer contiguity of dwellings in towns demands that artificial sanitary measures in the latter should be specially framed to provide for those unfavourable conditions peculiar to all crowded centres of population. In villages and townships the several dwellings, even although more imperfectly conditioned in themselves as regards local sanitary provision, are naturally more perfectly insulated from each other by more or less broad regions of pure air. The poisoned exhalations of every individual dwelling do not spread and become more virulent by

coming into direct contact with the poisoned atmosphere of neighbouring dwellings, but are at once dissipated or purified by that septum of pure air which it is reasonable to infer insulates dwelling from dwelling in thinly populated country districts. In urban districts, on the contrary, the septum of pure air surrounding each dwelling does not exist, or only exists temporarily or imperfectly, and consquently notwithstanding special medical supervision, purer water supply, and in many cases superior sanitary provisions, the death-rate is invariably higher, and the atmosphere of every well-regulated dwelling is more or less in direct contact with the exhalations of every noxious centre within the town. Hence it would appear that the absence of the insulating septum of pure air around town dwellings renders the inmates of every house more liable to the attack of all infectious diseases which may be floating in any part of the atmosphere within the town. Even the otherwise healthy wind may be the agent which directs the fatal effluvia from an unhealthy centre upon a relatively pure and healthy division of the town.

A town dwelling, therefore, unlike country dwellings, is insecure as regards health so long as any centre or dwelling within its boundaries is allowed to vitiate the common undivided atmosphere with poisonous exhalations. A special responsibility therefore rests upon Town Boards of Health to prevent, as far as possible, the creation and spreading of all noxious exhalations anywhere within their province. Improved antiseptic measures should be devised and rigorously enforced in every part of the community.

QUINQUENNIAL Summary of Deaths—under Districts, Classes, and principal Specific Causes—(1886–1890.)

Class.		Hobart District.					Launceston District.					Country Districts.					Tasmania.				
		1886.	1887.	1888.	1889.	1890.	1886.	1887.	1888.	1889.	1890.	1886.	1887.	1888.	1889.	1890.	1886.	1887.	1888.	1889.	1890.
	Classes.																				
1	Zymotic Diseases	67	144	92	98	60	64	85	64	78	54	81	121	98	138	173	212	350	254	314	287
2	Parasitic Diseases	1	5	1	4	...	1	3	...	1	...	7	5	3	6	3	9	13	5	11	3
3	Dietic Diseases	11	14	2	6	8	5	6	3	7	1	15	3	14	6	6	31	23	19	19	15
4	Constitutional Diseases	82	97	100	89	102	61	63	46	56	65	83	99	86	107	95	226	259	232	252	262
5	Developmental Diseases	167	185	138	142	152	56	70	66	66	69	109	119	123	119	125	332	374	327	327	346
6	Local Diseases	303	257	280	243	290	210	196	183	208	167	388	370	417	339	436	901	823	879	790	893
7	Violence	28	35	31	28	24	7	19	18	32	26	59	58	69	84	88	94	112	118	144	138
8	Ill-defined and non-specific	59	67	71	89	63	48	43	51	48	34	64	97	80	104	77	171	207	202	241	174
	TOTAL	718	804	715	699	699	452	485	431	496	416	806	872	890	903	1003	1976	2161	2036	2098	2118
	Principal Specific Causes.																				
	Old Age	146	166	129	129	143	48	60	65	57	60	93	108	107	100	111	287	334	301	286	314
	Phthisis	46	60	52	39	55	43	40	22	22	29	53	54	42	60	54	142	154	116	121	138
	Atrophy and Debility	49	59	59	77	52	31	27	37	37	26	35	62	56	79	46	115	148	152	193	124
	Heart Diseases, various	46	64	60	56	63	40	31	45	35	40	62	70	71	50	66	148	165	176	141	169
	Diarrhœa and Dysentery	32	52	39	28	23	27	29	13	21	20	44	66	42	68	60	103	147	94	117	103
	Convulsions	17	21	17	16	24	31	34	24	25	27	75	45	65	55	88	123	100	106	96	139
	Bronchitis	33	11	25	17	35	23	13	14	22	18	47	35	47	28	46	103	59	86	67	99
	Pneumonia	43	32	27	16	15	7	15	13	10	15	25	34	41	27	44	75	81	81	53	74
	Typhoid, &c	9	70	37	41	17	25	27	30	40	14	13	15	13	32	18	47	112	80	113	49
	Apoplexy	31	19	25	9	12	8	14	3	11	8	16	18	17	18	10	55	51	45	38	30
	Paralysis	6	9	20	8	5	9	16	13	11	6	21	15	13	6	15	36	40	46	25	26
	Diphtheria	4	13	5	8	8	2	10	8	10	6	6	12	30	25	35	12	35	43	43	49
	Premature Birth	19	16	7	12	8	6	9	1	8	8	12	10	13	18	13	37	35	21	38	29
	Fractures, Contusions	7	12	9	6	9	2	4	2	8	5	8	16	19	9	22	17	32	30	23	36
	Drowning	11	7	7	8	3	1	9	12	6	8	18	14	16	17	22	30	30	35	31	33
	Dentition	3	8	5	10	11	7	7	12	13	...	6	9	9	5	5	16	24	26	28	16
	All others	216	185	192	219	216	142	140	117	160	126	272	289	289	306	348	630	614	598	685	690

DEATHS PER 100,000 PERSONS LIVING.

	Classes.																				
1	Zymotic Diseases	225	473	295	307	183	329	426	312	372	252	100	145	115	158	193	163	262	185	224	200
2	Parasitic Diseases	3	16	3	13	...	5	15	...	5	...	9	6	3	7	3	7	9	4	■	2
3	Dietic Diseases	37	46	6	19	24	26	30	15	33	5	18	3	16	7	7	24	17	14	14	10
4	Constitutional Diseases	276	318	320	279	312	313	316	225	268	303	102	119	101	123	106	173	193	169	179	182
5	Developmental Diseases	562	607	442	444	464	288	350	322	315	322	134	143	144	136	140	255	280	238	233	241
6	Local Diseases	1020	843	896	760	886	1078	981	893	993	778	478	444	488	388	487	690	615	641	563	621
7	Violence	94	115	99	88	73	36	95	88	153	121	73	70	81	96	98	72	84	86	103	96
8	Ill-defined and non-specific	199	220	227	278	193	246	215	249	229	158	78	116	94	119	86	131	155	147	172	121
	TOTAL	2416	2638	2288	2188	2135	2321	2428	2104	2368	1939	992	1046	1042	1034	1120	1515	1615	1484	1496	1473
	Principal Specific Causes.																				
	Old Age	491	545	413	404	437	246	301	317	272	280	114	130	126	114	124	220	250	219	204	218
	Phthisis	155	197	166	122	168	221	200	107	105	135	65	65	49	69	61	109	115	85	86	96
	Atrophy and Debility	165	194	189	241	159	159	135	181	176	121	43	74	66	90	52	88	111	111	138	86
	Heart Diseases, various	155	210	192	175	192	206	156	220	167	188	76	84	83	57	74	114	123	128	101	118
	Convulsions	57	69	55	50	73	159	170	117	119	126	92	54	76	63	98	94	75	77	68	97
	Diarrhœa and Dysentery	108	171	125	88	70	139	145	63	100	93	54	79	49	78	67	79	110	69	83	72
	Bronchitis	111	36	80	53	107	118	65	68	105	84	58	42	55	32	52	79	44	63	48	69
	Pneumonia	145	105	86	50	46	36	75	63	48	70	31	41	48	31	49	58	61	59	38	51
	Typhoid, &c	30	230	118	128	52	129	135	146	191	65	16	18	15	37	20	36	84	58	81	34
	Apoplexy	104	62	80	28	37	41	70	15	53	37	20	22	20	21	11	42	38	33	27	21
	Paralysis	20	30	64	25	15	46	80	63	53	28	26	18	15	7	17	28	30	34	18	18
	Diphtheria	13	42	16	25	24	10	50	39	48	28	7	14	35	29	39	9	26	31	31	34
	Premature Birth	64	52	23	38	24	31	45	5	38	37	15	12	16	21	15	28	26	15	27	20
	Fractures, &c	24	39	29	19	28	10	20	10	38	23	10	19	22	10	25	13	24	22	16	25
	Drowning	37	23	22	25	9	5	45	59	29	37	22	17	19	19	25	23	22	26	22	23
	Dentition	10	26	16	31	34	36	35	59	62	...	7	11	10	6	2	12	18	18	20	11
	All others	727	607	614	686	660	729	701	571	764	587	335	346	338	350	389	483	459	436	488	480

There can be no doubt that urban and country district death-rates prove that the crowding together of human beings in particular centres is injurious to the health, and although the social needs of modern civilization render it impossible to prevent such aggregation, wise provision may mitigate its attendant evils by reducing this tendency to a minimum. This may be more easily effected in new countries, by only allowing town allotments to be proclaimed after the careful selection of healthful sites situated in localities where a good water supply and healthful drainage can be secured. Good ventilation, at the same time, can only be secured by a proper system of streets and lanes, and central reserves for parks. By prescribing the breadth of great intersecting broadways for each division ; the minimum width of streets and lanes ; the minimum area of central parks within each division, and the minimum air-space in dwellings and workshops for each person, the tendency to overcrowding would be minimised, and a healthful circulation in all quarters secured.

No building should be allowed to be erected until plans of the same, completed according to prescribed forms of structure, ventilation, and drainage, were passed and approved by a permanently appointed Board of competent advisers ; and the removal of all refuse and filth should be effected entirely by the town authorities by the best methods suited to the particular locality.

Together with these provisions we must also include the influence of man in the prevention and treatment of injury and disease. The selection of healthful sites for hospitals ; the proper isolation of cases deemed to be contagious or infectious ; and the proper treatment of cases, have also a very important influence upon the death-rate of each locality.

Upon the whole, it has now been made tolerably clear that, while the total death-rate for all ages may be used locally as a fairly reliable index of the health and sanitary condition of the same place from year to year, it has been proved to be a most fallacious index as regards the comparative health and sanitary condition of different localities, owing mainly to the extreme variability in the proportions living in different places under the principal age-groups. The elimination of old ages, as in the proposed *Health Standards* hereafter referred to, afford more reliable indices between different countries. As regards variations from year to year, it is hoped that the observations made may be helpful to others in making proper deductions therefrom.

Comparison showing Twenty of the specific Causes of Death in various Countries, in the order of their fatality.

SPECIFIC CAUSES.

Tasmania, 1886–90.						Victoria, 1888.	
Cause of Death.	Deaths per 100,000 Persons living.					Cause of Death.	Deaths per 100,000 Persons living.
	1890.	1889.	1888.	1887.	1886.		
1. *Old Age*	218	192	215	239	212	Phthisis	144
2. Atrophy and Debility	86	130	105	106	85	Atrophy and Debility	112
3. Heart Disease	118	95	122	96	105	Diarrhœa	77
4. Phthisis	96	81	80	110	105	Pneumonia	65
5. Convulsions	97	79	73	72	91	Bronchitis	64
6. Typhoid (Enteric Fever) &c.	34	76*	55*	80*	35	*Old Age*	62
7. Diarrhœa	58	67	65	88	65	Stomach Disease	55
8. Cancer	51	47	...	48	42	Typhoid (Enteric Fever, &c.)	51
9. Bronchitis	69	45	60	42	76	Cancer	49
10. Pneumonia	51	36	56	58	55	Premature Birth	44
11. Liver Disease	17	30	...	19	20	Liver Disease	41
12. Diphtheria	34	29	30	25	9	Fractures, Contusions, &c.	38
13. Apoplexy	21	26	31	36	41	Convulsions	35
14. Premature Birth	20	25	15	25	27	Apoplexy	34
15. Dentition	11	18	18	10	12	Enteritis	28
16. Drowning (accidental)	23	21	24	21	22	Drowning (accidental)	19
17. Paralysis	18	17	32	27	27	Bright's Disease	19
18. Fractures, Contusions	23	15	21	23	13	Tubercular Meningitis	17
19. Dysentery	8	12	...	10	11	Congestion of Lungs	16
20. Dropsy	17	10	2	23	24	Whooping Cough	2

New South Wales, 1888.		England, 1888.	
Cause of Death.	Deaths per 100,000 persons living.	Cause of Death.	Deaths per 100,000 persons living.
1. Phthisis	98	Bronchitis	200
2. *Old Age*	67	Heart Disease, &c.	167
3. Pneumonia	64	Phthisis	154
4. Diarrhœa	64	Pneumonia	107
5. Convulsions	62	*Old Age*	95
6. Bronchitis	59	Convulsions	72
7. Enteritis	48	Debility, Atrophy, Inanition	64
8. Heart Disease	48	Cancer	61
9. Typhoid (Enteric Fever, &c.)	41	Apoplexy	56
10. Cancer	38	Premature Birth	49
11. Fractures, Contusions, &c.	37	Diarrhœa, Dysentery	45
12. Premature Birth	36	Whooping Cough	43
13. Dentition	23	Measles	34
14. Diphtheria	23	Hemiplegia	31
15. Apoplexy	22	Inflammation of Brain	30
16. Tabes Mesenterica	22	Tabes Mesenterica	24
17. Measles	20	Tubercular Meningitis	24
18. Hemiplegia	16	Bright's Disease	24
19. Tubercular Meningitis	13	Fractures, Contusions, &c.	23
20. Dysentery	10	Scarlet Fever	22

* Epidemic of Typhoid in these years.

Effects of Age upon the Death-rate.

Tasmania still preserves its singular characteristic of having *Old Age* in itself the first on the list of specific causes of death. As explained in the Report prefixed to Statistics for 1882, this is the principal cause of our relatively high nominal death-rate as compared with the neighbouring Colonies, where the proportion of persons living over 60 years of age is very much lower. There is no doubt that the high proportion in Tasmania will be greatly reduced in a few years, as the number of a certain age-group, now fast dying off, is altogether abnormal, especially so for a young community.

It will be observed that so far as causation of Death is an index of the health of a community, Tasmania compares most favourably with England and Victoria, which are among the best types of healthy countries in Europe and Australia respectively.

*How far can the General Death-rate for all ages be relied upon as a comparative index of the health or sanitary condition of any community?**

Indices to the state of health or sanitary condition of a community are of the utmost importance to all, and especially so to those who are responsible for local sanitary provisions; and hence it is often asked, how far is the general death-rate of any year to be relied upon as a test of either the health or sanitary condition of any place or country?

It may be demonstrated that the general death-rate of any one place, though in itself due to a combination of many complex causes, may, nevertheless, be used as a fairly reliable local index to health and sanitary condition, although a most faulty index as regards the comparative health or the sanitary condition of different localities. The dominant influences which determine the total death-rate are these:—

1. Stationariness, increase or decrease of population.
2. The proportions living at various age-groups, especially the old age-group, 60 years and over.
3. Migration as affecting the said proportions.
4. Birth-rate as affecting the death-rate of 0·5 years' age-group.
5. Climate.
6. Seasonal influence.
7. Cosmical or obscure influences varying or itensifying local causes of diseases over wide cycles of years.*
8. War, violence, and famine.
9. Density of population as exemplified by town and country dwellings.
10. Sanitary provisions.
11. Local conditions of soil, altitude, &c.

Now, of these important influences, which together combine to make up the total death-rate, the first four, though strongly affecting it, are not in the slightest degree connected with either health or sanitary conditions. It is also obvious, so far as any one locality is concerned, that many of the conditions enumerated are more or less constant; while, as regards different localities, and especially countries widely apart, nearly all the conditions come into play as disturbers, and hence it is that the general death-rate of any one locality may be a fairly reliable comparative index of the health and sanitary condition from year to year; while, as regards longer periods, or widely separated localities, comparisons by the indication of a general death-rate are often utterly fallacious or misleading.

* See also Paper by the Author on this subject, *Proc. Royal Soc. of Tasmania*, read April 19th, 1887.

The following illustrates the disturbing effect of one of the most important influences.

The Effect upon the Death-rate of Stationariness, or of Comparative Acceleration of either the Rate of Increase or Decrease of a Population.

The ordinary death-rate is simply an expression of the proportion of total deaths in any year, irrespective of age, to the total actual or estimated mean numbers of persons living in the same year.

The popular assumption is that a large death-rate is an invariable index of an unhealthy condition, or a curtailment of the average life ; and a small death-rate is invariably assumed to be an index of a healthy condition or increased longevity. Generally speaking, this assumption is fairly correct if the comparisons are made between populations whose conditions are nearly alike in the following particulars :—

1. Proportion of persons living :—
   (*a.*) Under 5 years, large (+), small (—).
   (*b.*) 5 to 65 „ „ (—), „ (+).
   (*c.*) 65 and over „ (+), „ (—).
2. Population gradually increasing at the same yearly rate : (—)
   *(*a.*) By an increase in the average longevity = (—).
   (*b.*) By balance of migration in favour = (—).
   (*c.*) By increase of the rate of fertility among ages 20 to 25, however caused = (—).
3. Population gradually decreasing at the same yearly rate : (+)
   *(*a.*) By decrease in the average longevity = (+).
   (*b.*) By balance of migration against = (+).
   (*c.*) By decrease of the rate of fertility among ages 20 to 45, however caused = (+).
4. Population stationary or nearly so :
   (*a.*) Caused by a low rate of fertility among ages 20 to 45, associated with a normal or very low death-rate at various ages = (+).
   *(*b.*) Caused by a high death-rate at various ages, associated with a normal rate of fertility among ages 20 to 45 = (+).
   (*c.*) Caused by a continuous stream of migration nearly equal in extent to balance of natural increase, and often associated even with a low death-rate at specific ages = (+).

Note.—Sign (+) indicates tendency to effect a high total death-rate.
„ (—) „ „ „ low „ „

The total death-rate, whether high or low, may be determined by any one or a combination of one or more of these fifteen conditions, only three of which* can be strictly referred to comparative health or hygenic conditions.

Now, it rarely happens that any two towns or countries, or parts of these, are alike in all these important conditions, and hence, if corrections be not made for the purpose of neutralising the effect of the widely varying conditions, the conclusions drawn from their respective total death-rates are almost certain to be false and misleading. Take a familiar example of the misleading effect of a high death-rate mainly caused by the abnormal proportion of persons living within the district as in the Hobart suburbs, which include the large Charitable Establishment of the Island for the maintenance of aged and infirm males. In the city proper the total death-rate for 1890 was 19·56 per 1000 living ; and the total death-rate for the suburbs was as high as 26·54 per 1000 living. The former, however, had only 4·30 per cent. of its population living at ages 65 and over, while the proportion for the latter was 9·02 per cent. When correction is made for the difference in age proportion the death-rates between the two districts are reversed,—the suburbs with its 26·54 per 1000 is reduced to 19·28 per 1000, and the city with its 19·56 per

1000 is increased to 20·20 per 1000 for all ages. The result is even more remarkable when all ages over 65 are eliminated, the suburbs then showing 11·87 per 1000 living to 15·94 per 1000 in the city. Many of the supposed favourable health conditions based upon uncorrected total death-rates involve fallacious conclusions arising from similar circumstances, and therefore, notwithstanding the objections raised by the able President of Section H., (J. Ashburton Thompson, M.D., D.P.H.), at the meeting of the Australasian Association for the Advancement of Science held in Melbourne in January, 1890, vital statistics and the science of the actuary would be reduced to a state of hopeless confusion if the Statist failed "to supply the place of observed facts, which are wanting, by allowance and calculation," provided that these are made with proper care and judgment.

But, while many writers on vital statistics acknowledge and make allowances for the effect of age-disproportion between any two places whose total deaths are brought into comparison, it is seldom that attention is paid to another prolific source of error, viz., the death-rate as affected by either the stationariness increase or decrease of a population. In many places and countries the effect of these causes *per se* upon the total death-rate—and from causes quite distinct from hygiene—are quite as important as those wholly dependent upon local health conditions. The total death-rate in France, *e.g.*, is higher than that of England; but this is rather due to the almost stationary state of its population than to any differences in local health conditions. This is made more evident when we realise that the number of deaths in any year is more related to the respective living populations of the years of birth than to those of the years of death, and hence, if a population is progressive, the death-rate is measured by a larger divisor, and is reduced, and, if stationary, it remains the same. If the population be decreasing the divisor becomes less, and the total death-rate in consequence shows a larger proportion. This is at once obvious if we conceive an ideal population freed from all causes of death save that due to the completion of a healthy life, with a term of, say 100 years. First, let us suppose that the total population numbers 1,000,000 persons, and that it has been exactly stationary for at least 100 years; then its births each year must have equalled its deaths, each being 10,000 per year—*i.e.*, its birth-rate must be only 10 per 1000 living, and its death-rate the same. This birth-rate of 10 per 1000, even for such a peculiarly favoured population, is abnormally low, for it supposes the fertility of all pairs between 20 and 45 to be only equal to 4 per cent. If we now conceive the conditions to remain the same for another 100 years, while the fertility of pairs between 20 and 45 years has been suddenly increased so as to cause the total population to progress at the rates of natural increase occurring during the last thirty years in France, United Kingdom, and Tasmania, how would the death-rate be affected at the close of this period? The following table shows:—

THE Effect on the Death-rate of an Increasing Population.

(Natural Increase.) Population increasing for 100 years at the rate per cent. per year of	Population.		Births last year.	Deaths falling due last year.	Birth-rate per 1000 living.	Death-rate per 1000 living.	Average Age at Death.
	At the Beginning of Century.	At the Close of Century.					
·158 as in France ...	1,000,000	1,171,010	11,850	10,000	10·12	8·55	100
·890 as in United Kingdom	1,000,000	2,425,550	31,400	10,000	12·99	4·12	100
1·710 as in Tasmania	1,000,000	5,449,670	101,630	10,000	18·65	1·83	100

From this table we learn that the direct effect of an annual increase of 1·71 per cent. to this population would have the effect of lowering the death-rate of the last year of the century to 1·83 per 1000, the reverse being the case as regards birth-rate, which is raised to 18·65 per 1000. The average age at death, of course (100) remains unaffected.

Precisely the reverse of these results would occur if we imagine that migrations between 5 and 65 years, combined with a lowered rate of fertility, caused the population to diminish for a hundred years at the same rates annually, as shown in the following table :—

THE Effect on the Death-rate of a Decreasing Population.

Population Decreasing for 100 years at an annual rate of	Population.		Births last year.	Deaths falling due last year.	Birth-rate per 1000 living.	Death-rate per 1000 living.	Average Age at Death.
	At the Beginning of Century.	At the Close of Century.					
·158 per cent.....	1,000,000	853,965	...	10,000	...	11·71	100
·890 „	1,000,000	412,278	...	10,000	...	24·25	100
1·710 „	1,000,000	183,498	...	10,000	...	54·50	100

Similarly, if we imagined a like increase and decrease in a formerly stationary population whose natural limit of life was 47·78 years, as in the Life Table (Institute of Actuaries Text Book, Part II.), but the individuals of which are conceived to be preserved from death until the full limit of life has been reached, it would happen that in the 48th year, after the sudden commencement of an annual increase of 1·71 per cent. due to increased fertility of pairs 20 to 45, the death-rate would have fallen from 20·93 per 1000 living to 9·32 per 1000; and, conversely, if we conceive a corresponding rate of decrease, the last year of the term (47·78) would show the death-rate to be 47·02 per 1000 living, without affecting the average age at death in the slightest degree. It would require a very large amount of calculation to apply this reasoning to the existing population of any country, as there are so many complex matters involved; but it cannot be ignored that increase, decrease, and stationariness of population, respectively, form an *important element* in the causation of the smallness, greatness, or normal condition of the respective death-rates of various countries, which are too frequently referred *solely* to the more commonly accepted forms of causation.

The variableness of the conditions affecting the ratios of birth-rates and death-rates are also fairly illustrated in the following table :—

TABLE showing the Variability of Conditions which affect the Ratios of Births and Deaths.

	Ideal Stationary Population.		Almost Stationary Population.	Progressive Populations.		
	Ideal Perfect State.	Life Table (Inst. of Actuaries Text Book, Part II.)	France, **1889.**	United Kingdom, **1890.**	Tasmania, **1890.**	New Zealand, **1890.**
AVERAGE LIFE AT DEATH—ideal or estimated	100 years.	47·784 years.	47·78	—	—	—
Total population (ideal or estimated) .....No.	1,000,000	6,082,031	38,480,000	38,227,321	145,290	626,830
Persons living between 20 and 45.....No.	250,000	2,191,481	13,890,000	13,379,562	51,410	215,200
Estimated pairs „ „ .....No.	125,000	1,095,741	6,945,000	6,689,781	25,755	107,600
„ Married females under 45.....No.	74,010	648,800	4,112,000	3,961,000	15,150	63,720
„ Females „ .....No.	125,000	1,095,741	6,945,000	6,689,781	25,755	107,600
Births .....No.	10,000	127,283	880,579	1,116,555	4813	18,278
Deaths .....No.	10,000	127,283	794,933	674,464	2118	5994
Excess of Births over Deaths.....No.	*Nil.*	*Nil.*	85,646	442,091	2695	12,284
RELATIVE.						
Percentage ages 20–45 to total population.....	25·000	36·04	36·10	35·00	35·38	34·34
„ Births „ „	1·000	2·093	2·288	29·20	3·312	2·916
„ Deaths „ „	1·000	2·093	2·065	1·779	1·453	·956
„ Births to persons between 20–45.....	4·000	5·81	6·339	8·340	9·360	8·704
„ „ females „ „	8·000	11·62	12·680	16·680	18·720	17·405
„ „ married females under 45 years	13·510	19·62	21·410	28·190	31·770	29·390
Number of Births to each married female under 45 years.....	·1351	·1962	·2141	·2819	·3177	·2939
Number of Births to each female 20–45.....	·0800	·1162	·1268	·1668	·1872	·1741
Estimated natural Increase last year.....per cent.	*Nil.*	*Nil.*	0·223	1·141	1·859	1·960
Ditto mean of 30 years ..... „	*Nil.*	*Nil.*	0·158	0·890	1·710	3·750

The Influence of Migration.

The death-rate for all ages is also greatly affected by migration, as it invariably disturbs the proportion of the principal age-groups.

The bulk of immigrants to cities and young colonies consists of persons between the ages of 5 and 50. This is the period of life, as already explained, when deaths are at a minimum relative to the same group living. In most of the Australasian Colonies the death-rate for this group ranges between 5·60 and 7·72 persons per 1000 living.

Where immigration is large in proportion to the original population there will certainly be a very great fall in the total death-rate without any change in the proportional yields for each age-group, and without any material change in the conditions affecting health.

Thus, if a stream of immigration, equal to 10,000 per year, of ages between 5 and 35, were absorbed by a young colony whose original normal population was 200,000, with a total death-rate of 15·40 per 1000, then, if the death-rate for ages 5 to 60 was only 6·17 per 1000, it follows that in ten years the total death-rate would be reduced to 12·32 per 1000,—that is a fall of 3·08 per 1000 in the total death-rate, without any alteration whatever as regards death-rate yield for particular ages, and with no material alteration in the conditions affecting the health or sanitary state of the Colony.

A corresponding increase in the total death-rate, however, need not be expected in the country from whence immigration proceeded, as the numbers in most cases would be comparatively insignificant.

Thus, if the country from whence immigration proceeded originally numbered 36,000,000, with a normal death-rate for all ages of 20 per 1000, then a stream of immigration equal to 10,000 per year for ten years, of persons between 5 and 50 years of age, would only have the effect of increasing the total death-rate for all ages by about 0·004 per 1000. From such considerations, therefore, it is evident that a very considerable decline in the death-rate of a young colony which yearly absorbs a large number of immigrants may be almost entirely ascribed to this cause, and not to any improvement in local health or sanitation.

From similar considerations it is also evident that the comparatively low death-rates of some large cities may be due in great measure to the absorption of fresh country lives between 15 and 40 years, and not to the comparative health and sanitation of the city. The comparative high death-rate of young lives in rapidly growing cities confirms this view of the case.

Assuming that the bulk of immigrants are between 5 and 35 years of age, it has been attempted to show in the following table the effect of migration in England and the Australasian Colonies in adding to or increasing the total death-rate of the several places accordingly as the balance of migration was in favour or against the particular country.

It will be seen that, as regards Australasia as a whole, it has the effect of lowering the death-rate by 2·08 per thousand. This effect in each colony differs greatly, as might be expected, but in each case it helps to throw light upon the apparent anomalies of their existing death-rates.

Migration and Death-rate.

Increase of Australasian Population since Year 1860.

(30 years.)

	Population, 1860.	Population, 1890.	Increase since 1860.			Annual Rate of Increase since 1860.		
			By Excess of Births over Deaths.	By Balance of Migration.	Total Increase.	By Excess of Births over Deaths.	By Balance of Migration.	Total.
Victoria	537,847	1,133,266	467,875	127,544	595,419	1·98	0·54	2·52
New South Wales	348,546	1,121,860	461,905	311,409	773,314	2·38	1·60	3·98
Queensland	28,056	392,695	121,117	243,792	364,909	3·05	6·14	9·19
South Australia	124,112	324,101	163,016	36,973	199,989	2·65	0·60	3·25
Western Australia	15,600	48,626	15,360	17,666	33,026	1·80	2·06	3·86
Tasmania	87,775	145,290	58,087	— 572	57,515	1·71	— 0·02	1·69
New Zealand	79,111	625,662	287,317	259,234	546,551	3·75	3·39	7·14
	1,221,047	3,791,770	1,574,677	996,046	2,570,723	2·36	1·49	3·85

Increase of United Kingdom Population since 1861.

	(1861.)	(1891.)	(Since 1861.)			(Since 1861.)		
London	2,803,847	4,211,056	914,200	493,009	1,407,209	0·89	0·48	1·37
England and Wales	20,066,224	29,001,018	9,904,352	— 969,568	8,934,784	1·37	—0·13	1·24
Scotland	3,062,294	4,033,103	...	...	970,809	...	...	0·92
Ireland	5,798,967	4,706,162	...	...	— 1,092,805	...	...	— 0·70
United Kingdom	28,927,485	37,740,283	...	...	8,812,798	...	...	0·89

APPROXIMATE Effect of the last 30 Years' Migration upon the Australasian Death-rate.

	Mean Population, **1890.**	DEATHS, **1890.**		Population 1890, less or more Balances of Migration since 1860.	DEATHS, 1890, LESS PROPORTION DUE TO IMMIGRATION SINCE 1860.		Estimated Effect of Migration on Death-rate. — Diminished. + Increased.
		No.	Per 1000 of Mean Population.		No.	Per 1000 Persons, exclusive of Immigrants.	
Victoria	1,118,196	18,012	16·10	990,542	16,851	17·01	— 0·91
New South Wales	1,101,839	14,217	12·90	790,430	11,844	14·99	— 2·09
Queensland	390,000	5638	14·44	146,208	3426	23·43	— 8·99
South Australia	320,553	3923	12·24	283,580	3693	13·02	— 0·78
Western Australia	45,117	540	11·97	27,451	416	15·15	— 3·18
Tasmania	143,734	2118	14·74	144,306	2122	14·70	+ 0·04
New Zealand	625,530	5994	9·58	366,296	4405	12·01	— 2·43
All	3,744,969	50,442	13·47	2,748,923	42,757	15·55	— 2·08

APPROXIMATE Effect of the last 30 Years' Migration upon the Death-rate of London, and England and Wales.

London	4,133,000	76,026	18·39	3,639,991	71,550	19·65	— 1·26
England and Wales	28,700,000	518,353	18·06	29,669,568	526,623	17·75	+ 0·31

The Disturbing Effect of varying Proportions of Persons living at various Age-groups.

To fully comprehend the effect of disturbance from this source we must know in a general way the widely differing proportions which each age-group of living persons yield to the yearly death-rate. This is best appreciated by dividing the ages into three well-marked groups; the first, 0-5 years, showing the heavy losses at the beginning of life; the second, 5-60 years, or vigorous period, showing the sudden descent to a minimum, covering the period of youth and middle age; the third, 60 years or over, or old-age period, suddenly curving upwards and marking the maximum of loss occasioned by the natural decay and termination of the more vigorous lives.

The tables and diagrams contained in Statistical Report for year 1886 give a vivid picture of the broad proportional agreement that exists in different countries as regards the losses of life at the three great age-groups. For, notwithstanding the fluctuations caused in different countries, whether due to climate or peculiarities of local condition, there is a wonderful similarity in the proportions which different countries yield at each respective age-group.

The *first* ranges between	27·65	and	50·60	per 1000 living.
The *second* „	5·60	„	12·66	„
The *third* „	49·18	„	70·39	„

The mean of each age-group shows the relative proportion still more clearly; thus :—

0–5 years' age-group yields	42·15	deaths	per 1000 living.
5 and under 60 years „	7·73		„
60 years and over „	61·53		„

Thus it appears that there is a very wide difference in the proportion of deaths yielded by each age-group, and hence it is that if there be any wide difference in the proportions of the respective groups living in different places, as in young Colonies, the total death-rate would be so much disturbed thereby that comparisons, so far as they refer to health or sanitary condition, would be erroneous and misleading. That this is to be expected is made still more apparent by contrasting the percentages of Ages living with the percentages of Deaths per year under corresponding age-groups.

Age Groups.

Age-group.	Persons Living.—Percentage.		Deaths per Year.			
			Rate per 1000 Persons living within same Age limit.		Percentage to Total.	
	Variation.	Mean.	Variation.	Mean.	Variation.	Mean.
1. 0-5 years	13·5 to 17·01	14·63	27·65 to 50·60	42·15	34·92 to 45·65	39·69
2. 5-60 years	77·93 to 83·18	80·62	5·60 to 12·66	7·33	28·34 to 53·79	39·80
3. 60 years and over	1·87 to 8·04	4·75	49·18 to 70·39	61·53	6·38 to 36·74	20·51

A study of the foregoing table reveals that if 1 and 3 groups, together representing 19·38 per cent. of the living population, yield as much as 60·20 percentage of the whole deaths for one year, it follows, if there be any material difference in the respective living groups of different countries, that the total death-rate would show a corresponding difference, even though the proportion of deaths yielded at each age-group were identical in the several countries compared. Thus, though the death-rate of each specific age-group were identical in two countries, still the country having the smaller percentage of old age and children living would show a *lower death-rate*. Nay, more. If the variation be considerable, the country with the *smaller* percentage of extremes of youth and old age living would show a *lower total death-rate*, even where the ratio of deaths at specific ages was much *higher*. Take, for example, two towns of 100,000 inhabitants, as in the following illustration :—

Illustration of two Towns, each with 100,000 *Inhabitants, but differently proportioned as regards Age-groups living, although the proportion of Deaths yielded by both are the same in relation to each Age-group.*

	Population. No.	Percentage living at			No. Deaths per Year.				Deaths per 1000 Persons at each Age-group.				
		0-5.	5-60.	60 and over.	0-5.	5-60.	60 and over.	Total.	0-5.	5-60.	60 and over.	Total.	
Town A	100,000	13·50	84·63	1·87	613	474	92	1179	38·00	5·60	49·18	11·79	Difference of 2·82 per 1000
Town B	100,000	17·01	74·95	8·04	646	420	395	1461	38·00	5·60	49·18	14·61	

This is a good illustration of cases where the total death-rate is a faulty comparative index to the state of health or sanitary condition, for the difference 2·82 per 1000 is due entirely to the varying proportion of persons living at each age-group, and not to any difference in the proportion of deaths yielded by them.

Illustration of three Towns, each with 100,000 *Inhabitants, but differing in proportion as regards Age-groups living, and also differing in the proportions of Deaths yielded by each group.*

	Population. No.	Proportion per cent. living at each Age-group.			No. of Deaths per Year.				Deaths per 1000 Persons at each Age-group.			
		0-5.	5-60.	60 and over.	0-5.	5-60.	60 and over.	Total.	0-5.	5-60.	60 and over.	Total.
Town C	100,000	13·50	84·63	1·87	569	654	115	1338	42·15	7·73	61·53	13·38
Town D	100,000	17·01	74·95	8·04	646	420	395	1461	38·00	5·60	49·18	14·61
Town E	100,000	17·01	74·95	8·04	717	579	494	1790	42·15	7·73	61·53	17·90

This comparison again still more forcibly illustrates the faulty indication of the total death-rate, as regards the comparative state of the health or sanitary conditions of the three towns taken ; for it so happens that D, which has a much larger yield of deaths relative to each age-group, is nevertheless made to appear 1·23 per 1000 persons *higher* than C by the total death-rate ; whereas the true relation of C, in relation to health and sanitary condition, as compared with D, can only be ascertained by computing C's death-rate at each age-group in connection with the same living age-group proportions, as in D. By this means alone would a true comparison be effected between them as regards health and sanitary condition, and instead of C being 13·38 per 1000 persons, and lower than D by 1·23 per 1000, it is, as regards health in relation to D, really equivalent to 17·90 per 1000 persons living, or equal to 3·29 per cent. per 1000 *above the index of* D.

Since the *Health Standard* was proposed by the writer, in 1882, another method for effecting comparisons was introduced by Mr. Hayter (Year Book for 1885, pp. 264-268, and termed by him *The Absolute Death-rate.* This method ignores actual proportions living at each age altogether, and artificially substitutes uniformity of proportion, by recognising fifteen age-groups of equal value, say 1000 for each) ; but, as it makes no allowance for the element of old age, this health element neutralises the true approximate indication of proportion from preventible causes, and renders it useless as a comparative standard of health.

In a paper communicated by the author to the Royal Society of Tasmania on April 19th, 1887, the merits and defects were shown of the several methods usually employed indifferently to measure *natural increase or decrease of population*, or as an index to the *comparative health* of different places or periods. It was also shown that the ordinary reference of the proportion of total deaths to the number of persons living is not *in itself* in any sense *a comparative health standard*, as popularly understood ; and that all comparative methods which ignore proportional age-groups living, and make no allowance for the *value* of greater longevity, are utterly misleading in most cases, when unguardedly used as comparative standards of health. A simple method was then also suggested for correcting comparative tables, so far as the living age-groups are concerned, with a view of bringing a common fixed standard of age-groups into a closer approximation with the average actual proportions living in different countries, and so avoiding one of the chief defects of Mr. Hayter's original *Absolute Death-rate* standard. The methods referred to, termed the " Relative" or " Comparative Death-rate" for all ages, divided the ages living into the three principal groups 0-5 : 5-60 : 60 and over; and as it is ascertained, by reference to the average numbers living in different countries, that these groups bear the proportion to each other of 3, 16, 1, respectively, these simple numbers and groups were selected as the best and most convenient for minimising the error usually contained in aggregates obtained from widely differing proportional numbers of persons living at different ages in different countries. The method for effecting this correction was illustrated as follows :—

Let A = Proportion of ages living 0-5 years = 3*
B = " " " 5-60 " = 16*
C = " " " 60 and over = 1*
R^a = Death-rate actually yielded by ages living 0-5
R^b = " " " " " 5-60
R^c = " " " " " 60 and over
D = Relative or Comparative Death-rate for all ages :

$$\text{Then, } \frac{AR^a + BR^b + CR^c}{A + B + C} = D$$

* These figures are the lowest simple relative approximates to the mean proportions living within the respective age-groups.

The proportions 3, 18, 1, though more closely approximating the average of different countries as regards the age-groups named would be more exact, so far as the population of England is concerned, if the age-groups were modified slightly; thus :—

Ages 0-5	=	3
„ 5-65	=	18
„ 65 over	=	1
All ages.....	=	22

Total Death-rate disregards Longevity.

The fundamental objection to all *Total Death-rate indices*, when used as Health Standards, is,—that a life terminating *one hour after birth* is reckoned to be of equal value to a life terminating *one hundred years* after birth ; and that the death of an *octogenarian* from *senile decay* adds as much to the *rate* as the death of youth or middle age from a *preventible cause* such as *smallpox or typhoid.* To find a true *health standard* under such conditions would be as deceptive and hazardous as to find the truth of a complex problem composed of elements whose values, whether *plus or minus*, could not be ascertained. Reasoning upon such matters is often obscured by many minor considerations ; and the latter too often are erected into a position of importance to which they are not by right entitled. Some trivial influences are too often magnified, because the labour and ingenuity in tracing them are sometimes very great. It is well to go back to first principles occasionally, and endeavour to obtain answers to the following queries :—

Is the relative smallness of the proportions which the numbers of deaths may bear to the living, within any one of a serial order of age-groups—or taken as a whole—always to be taken as a perfectly reliable index (*a*) of the superior health conditions of the particular place? (*b*) of the direct beneficial influence of the particular year? or (*c*) of the *comparative health* of the different age-groups within the same environment? If an answer in the affirmative cannot reasonably be given to each query, then it is clear that standards based upon this method, without qualification, cannot justly be acknowledged as *Health Standards,* however useful they may be for other purposes.

Broadly speaking, the relative smallness of the proportion may be accepted as true as regards *a* and *b* ; but, even here, the extraordinary experience of the city of London (*see* following table) introduces doubt whether the very low proportion between the ages 10–30 may not be due to the continuous migratory circulation between the country and the city : the latter benefited by the introduction of fresh healthy country-born youths freed from the influence of birth-rate ; the former injured in comparison by exchanging its healthy youth for those returning broken in health by the unhealthy employment and the injurious environment of the city.

Death-rates at Twelve Groups of Ages.

			Deaths per 1000 living at each Age-group.												Relative Health Standard.	
			0 - 5.	5 - 10.	10 - 15.	15 - 20.	20 - 25.	25 - 35.	35 - 45.	45 - 55.	55 - 65.	65 - 75.	75 - 85.	85 and over.	All Ages.	Death-rate corrected for disproportion of Age-groups.	
															All Ages.	Under 65.
Tasmania	Mean	1890	32·71	4·4	2·3	4·0	5·8	6·1	7·9	11·6	25·7	64·9	145·9	274·0	14·7	14·55	10·57
England & Wales	„	1889	51·3	4·5	2·7	3·9	5·0	6·8	10·4	16·3	28·8	64·0	131·4	276·0	17·9	17·87	14·56
Cumberland ..	„	1889	47·8	3·9	2·3	4·5	5·0	6·1	9·5	15·8	28·7	62·1	125·1	306·9	17·5	17·00	13·74
Hobart.....	„	1890	48·0	5·5	2·2	5·0	11·0	7·4	12·6	15·0	30·0	96·7	186·7	361·7	21·34	20·25	15·15
London	„	1889	53·8	4·7	2·4*	3·1*	3·9*	6·3	11·3	18·6	31·3	66·9	137·7	289·1	17·5	18·58	15·11
Whitechapel..	„	1871-80	95·8	9·7	5·6	7·7	10·7	18·6	29·0	40·0	61·4	101·6	187·5		33·0	35·31	30·92
Strand.....	„	„	100·0	12·4	5·3	8·3	8·3	14·2	24·3	34·0	49·6	75·2	158·6		28·6	32·32	29·18
Devizes	„	„	38·0	4·4	3·6	6·8	7·1	10·4	14·3	18·3	31·3	71·4	165·9		21·1	19·03	15·39

In the foregoing table we have the more elaborate death-rate for all ages, and for twelve subordinate age-groups in serial order. To the right of it is added the "Relative Health Standard" for all ages under 65 years corrected for disproportion of numbers living under different age-groups 0-5 and 5-65. A study of the two methods side by side brings out curious contrasts. For example, if we take in ascending order the indices of the ordinary "Death-rate" and "The Relative Health Standard," the several places are wonderfully transposed or altered in relative value; thus:—

By "Ordinary Death-rate."		By "Relative Health Standard" (Ages under 65).	
1. Tasmania	14·7	1. Tasmania	10·57
2. Cumberland	17·5	2. Cumberland	13·74
3. London	17·5	3. England and Wales	14·56
4. England and Wales	17·9	4. London	15·11
5. Devizes	21·1	5. Hobart District	15·15
6. Hobart District	21·3	6. Devizes	15·39
7. Strand	28·6	7. Strand	29·18
8. Whitechapel	33·0	8. Whitechapel	30·92

Who would have imagined, in looking over the deceptively elaborate "Ordinary Death-rates," that so much difference would be shown between the average of England and the City of London in respect of comparative health, as represented by the more reliable and simple "Health Standard!" And who could ascertain from the former deceptive indices that, in a "health" point of view, the Hobart District in one of the worst years was about equal to the much vaunted City of London!

Some have objected to the "Health Standard" because it does not profess to show the proportion which the number of deaths bear to the living for age-groups over 60 or 65 years. But a little reflection will show that such comparative proportions in the old age-groups *are obviously false* if the larger proportions are interpreted adversely as regards relative health, either with respect to other places or other age-groups where the proportions appear to be *smaller*. The only true test of perfect health afforded by death, whether of the life or its environment, is extreme length of years, and not the proportion which the dying bears to the living; and this, fortunately, is not a mere matter of opinion, for it can be demonstrated in a very simple manner, as shown hereafter.

Let us suppose that there are now living in Tasmania five persons over the age of ninety-nine years, as follows:—

Age.....	90.	91.	92.	93.	94.	95.	96.	97.	98.	99.	100.	101.	102.	103.	104.
Year 1888.	10	4	—	6	—	—	—	—	—	5	—	—	—	—	—

Now, suppose that during the next five years one of the five living under age (99) in 1888 dies at the close of each succeeding year, it would then be seen that as the number of the survivals diminished, the proportion of the dead to the living age-group 100 *and over* necessarily increases geometrically, while the average age at death also increases, but more slowly and in numerical order; thus:—

Age middle of Year.	Persons living, 100 and over.						No. of Deaths, 100 and over.						Deaths per 1000 living.	Average Age at Death.
	100.	101.	102.	103.	104.	Total.	100.	101.	102.	103.	104.	Total.		
1889	5	—	—	—	—	5	1	—	—	—	—	1	200	100
1890	—	4	—	—	—	4	—	1	—	—	—	1	250	101
1891	—	—	3	—	—	3	—	—	1	—	—	1	333	102
1892	—	—	—	2	—	2	—	—	—	1	—	1	500	103
1893	—	—	—	—	1	1	—	—	—	—	1	1	1000	104

Thus, it is clearly demonstrated that within five years the mere dropping out of five lives within the 100 and over age-group gradually raised the proportion of the dead to the living from 200 to 1000 per thousand necessarily; and at the latter ages, instead of a low proportion being the best index to the best health and greatest longevity, it is the reverse; *for* 1000 *per thousand* can alone be obtained by that life which in the middle of the last year *is the oldest living survival.*

Other Fallacies.

There are other fallacies connected with the actual proportions between the living and dying at particular age-groups; especially so when the latter—no doubt with the desire for greater precision—are broken up, as shown, into a great number of small divisions.

It is true the actual numbers of the dead under each subdivision can be ascertained in each year, but the actual *number of persons living* under similar age-groups in any place can only be ascertained with anything approaching similar precision in each *Census* year. The percentage proportions of persons living under the smaller age-groups vary considerably in young countries within a very few years; and although the extent of variation is limited, the estimates of living population are invariably based upon the assumption that the proportions of subdivision on estimated total population of the current year are identical with the proportions obtaining in the year when the last Census was taken. It may happen, therefore, that the minor variations observed between one year or one country and another (in some of the smaller age-group divisions especially) are as frequently due to erroneous estimates of the population living in that group in the particular year, as to any change in the local influences affecting health. Besides, the stability of any general law, as in expectation of life, depends often upon the breadth of the numbers taken into the reckoning. Now, as the minor or quinquennial groups living dwindle away gradually from the relative proportions of about 13·5 for the 0-5 group, to about 0·005 in the group 95 and upwards, it is apparent that in populous countries, in the groups over 55, and in thinly populated colonies in the earlier, the persons living under the minor groups of ages are not numerous enough to give satisfactory indications. The same objections do not appear so formidable when the broad divisions of Childhood,

Youth, Middle Age, Old Age are taken into consideration—say, 0-5, 5-65, and 65 and over—which constantly present the proportions of 3, 18, 1, nearly, in a division of 22 taken as total. These are the principal reasons why the method of the "Health Standard" originally introduced by the writer in 1882 may be considered as at once the *truest and most convenient single index* of the health of any community. In the communication to the Royal Society of Tasmania referred to, there is also introduced a method for improving the Health Standard by adopting a uniform standard approximating to the average of normal living populations, and so getting rid of the error caused by serious disproportion in the corresponding age-groups of the places compared. This was (see page xxi., Statistics of Tasmania for 1886) by combining age-groups 0-5 and 5-65, as in the improved "Comparative Death-rate for all Ages," and eliminating the disturbing Old-age group $\frac{CR^c}{C}$, whose proportions of dying to the living are antagonistic to the earlier groups from a health point of view, as already demonstrated.

This improved Health Standard is fully explained in Statistical Report, 1886, and is termed *The Relative Health Standard*, in contradistinction to the old (actual) Health Standard for ages under 60, which makes no allowance for local differences in the age proportions of the living 0-5, 5-60.

The formula for computing *The Relative Health Standard* was given also in p. xxii. in the same report, together with the other methods; and, as already explained, only differs from the formula of the Comparative Death-rate for all ages by the elimination of $\frac{CR^c}{C}$.

Thus: $\frac{AR^a + BR^b}{A + B} = H$, or Relative Health Standard.

Or, $\frac{(\text{Death-rate 0-5 group} \times 3) + (\text{Death-rate 5-60 group} \times 16)}{3 + 18, \text{ or } 21} = H.$

The especial feature of the two new methods given—viz., *the Comparative Death-rate* for all ages, and the *Relative Health Standard* for ages under 65—is, that *they both make allowance for the varying conditions in regard to age* which may exist between different populations.

The following table shows how closely Mr. Hayter's more recently adopted *Adjusted Death-rate* follows the principle of the *Relative Health Standard* as used in this work in regard to the fundamental principles—(1) the exclusion of old ages; and (2) the correction for the possible disproportion of living age-groups in different places by means of a common fixed standard approximately to the average mean proportions observed in various countries:—

Fixed Standard of Model Population for correcting the possible Disproportion existing in important living Age-groups between different Places compared.

Age-group.	The Method of the Author's Relative Health Standard.*					The Method of Mr. Hayter's Adjusted Death-rate.		
	Relative Proportion of the Age-group in a Model Population.	Death-rate per 1000, Tasmania, 1890.	Relative Number of Deaths in each group in a Model Population of 10,000.				Death-rate per 1000, Tasmania, 1890.	Relative Number of Deaths in each group in a Model Population of 10,000.
0 – 5 = A	1364 = 3	32·71 = R^a	44·62	:	98·13	1350 = 3	32·71	44·16
5 – 10						1200	4·45	5·34
10 – 15						1075	2·28	2·45
15 – 20						1000	4·02	4·02
20 – 25						900 = 8200 or 18	5·84	5·26
25 – 35						1475	6·10	9·00
35 – 45						1125	7·90	8·89
45 – 55						825	11·62	9·59
55 – 65						600	25·71	15·42
=B	8182 = 18	6·85 = R^b	56·04	:	123·30			
			100·66	:	221·43			
All Ages under 65	9546 = 21	..	221·43 ÷ 21 = Average per 1000, 10·55 = H†			9550 = 21	..	104·13 ÷ 9550 = Average per 1000, 10·90‡
65 – 75	..	..	..			325	64·94	21·11
All Ages under 75	..	..	..			9875 = 1		125·24 = Average per 1000, 12·69§
75 – 85	454 = 1		43·49			110	162·29	20·29
85 and over = C						15		
Total ...	10,000 = 22		144·15 Average per 1000, 14·42 §§			10,000 = 22	14·74**	145·53 = Average per 1000, 14·56‡‡

* Age-group 0-60 modified to 0-65 to effect comparison more exactly.
† 10·55 H = Relative Health Standard result for all Ages under 65.
‡ 10·90 = Adjusted Death-rate result „ „ „ 65.
§ 12·69 = „ „ „ „ „ „ 75.

§§ 14·42 = Relative Health Standard for all Ages.
‡‡ 14·55 = Adjusted Death-rate Result for all Ages.
** 14·74 = Total Death-rate—not corrected for age disproportion.

It will be seen from the comparison of the two methods that the differences between them involve no difference in principle. The Adjusted Death-rate simply follows the method of the Relative Health Standard. The only modifications introduced are the multiplication of age-groups 5-65, and the invasion of the old-age group, including all ages under 75. Substantial reasons have already been given unfavourable to proportions drawn from the smaller age-group subdivisions, and especially as regards the fallacy of all proportions between living and dying in the old-age group as regards *Comparative Health*. In addition, the Adjusted Death-rate is inconvenient, and involves at least five times the labour of computation when compared with the handy Health Standard ; and as necessary data for the age group divisions of the former can seldom be obtained in the Vital Statistics of many countries, it is far less practicable. This is borne out by the fact that in Mr. Hayter's Year Book he still uses the defective ordinary death-rate in comparisons between the several Colonies and their chief divisions, cities, and towns. Rightly or wrongly the popular notion is that the ordinary Death-rate is a fair index of comparative health, and is mainly judged in this way, even by the members of the medical profession, although its indications are often worse than useless.

Comparative Health of Cities.

The unscientific method of measuring the comparative health of cities by the ordinary "Death-rate," like many other popular fallacies, is far too deeply rooted to be easily destroyed. But although ordinary persons may be excused for counfounding a "Death-rate" with a "Health Standard," it is a matter for surprise that those who contribute articles on Public Health to *The Lancet* and other first-class publications should still display so much ignorance on this very important subject. Much harm is done also in popular statistical works in making a simple parade of unqualified "Death-rate" figures relating to various cities, inasmuch as the higher rates are invariably interpreted as the more unhealthy. It may be safely affirmed that the comparative health of *cities* cannot be closely approximated by means of the "total Death-rate." Nor can any reference be relied upon if the following safeguards or particulars are imperfect or lacking in respect of each city compared :—

1. Record of Deaths under various ages.
2. Estimated Population of the current year, computed on the basis of proportions at last Census ; and in case of extensive local country or town migration between Census years, the average birth-rate (say, mean of last Census year and the two years following) should be computed in relation to the actual known births of the year, as a test of accuracy.

For better illustration of these remarks, let us take Mr. Hayter's usual reference :—

DEATHS in Australasian Capital Cities, 1890.

Order.	Capital Cities. *	Mean Estimated Population, 1890.	Deaths.			
			Total Number.		Number per 1000 of the Population.	
			1889.	1890.	1889.	1890.
1	Hobart	32,744	699	699	21·88	21·34
2	Melbourne	473,500	10,412	9297	23·39	19·63
3	Brisbane	89,210	1572	1615	21·34	18·10
4	Adelaide	131,020	1856	2030	15·42	15·50
5	Sydney	374,420	6338	5591	16·94	14·93

*Including suburbs.

Of course, it is natural for ordinary persons to conclude that this is a record or index of the comparative health of these cities : and if it be not so they may well exclaim, for what other purpose are they shown ? For they are too imperfect to be used for actuarial or other purposes.

That they are utterly fallacious as indicies of comparative health, is demonstrated in the following table computed on the basis of the Relative Health Standard, the only measure for ascertaining comparative health with any degree of accuracy :

RELATIVE Health Standard—various Cities.

	Deaths under 65 years per 1000 living, corrected for age disproportion.					
	1885.	1886.	1887.	1888.	1889.	1890.
1. Hobart City Suburbs	...	15·79	17·99	16·25	15·49	14·84
2. Sydney Suburbs	...	17·35	16·33	...	16·57	...
3. London	...	18·10	18·00	...	...	13·09
4. Adelaide	...	21·44	20·48	...	...	...
5. Brisbane	...	21·50	19·65	...	21·01	...
6. Melbourne Suburbs	...	19·40	21·00	...	23·51	17·97
7. Glasgow	25·31	...	...	...	...	...
8. Dublin City (North & South)	...	...	36·04	...	...	...

If there be any lingering doubt as regards the truth of this relative order from a health point of view, which places Hobart in a far superior position to the rest—and not the reverse, as shown in the ordinary death-rate table, it ought to be settled by reference to the associated columns—deaths 0-5 and 5-65 taken by themselves ; deaths under 1 year per 1000 births ; and average mean age of all persons dying 65 years and over. A careful analysis of the following Comparative Table unmistakably demonstrates that these collateral tests combine in showing that Hobart (as might be anticipated, from its smaller size and from its naturally favoured position) stands in the most favourable position in every respect. That is; (1) life is more greatly prolonged ; (2) its infantile mortality is the lowest ; (3) there are fewer deaths under 65 to the population living under the same age limit than in any other city

compared ; (4) and lastly, there is a larger proportion of the population living to extreme old age than elsewhere, and that even the larger numbers, 65 and over, show a higher mean age at death (76·1 – 76·5) than in any of the rest.

It has already been shown that in the old-age group 65 and over the highest relative proportions between dying and living (viz., 200 to 1000 per 1000) can only be attained by *those who live longest*. It is significant that Hobart Suburbs, 1890, should illustrate these conclusions so remarkably. Its "Ordinary Death-rate"—owing to the large number of persons living within this division (9·02 per cent. of total population), 65 years and over, is larger than any other city or division of city shown, (viz., 59·46), and so also is the proportion of deaths to persons living, 175·05). Nevertheless, it is clear that no other city or division of city contrasted can vie with it in a health point of view—in the smaller proportion of deaths in the ages 0–65, especially in infants under one year and all children under 5 years; and in the mean age at death of the very unusual proportion of persons who have prolonged their lives beyond the limit of 65 years.

The "Ordinary Death-rate," which ignores longevity and the causes of death entirely, and merely indicates the proportion existing between the numbers living and dying—conceals all important truths relating to health ; and, as regards cities at least, its results are utterly misleading and harmful.

To include deaths over 65 years in any "Health Standard," based upon the proportions between the living and dying, may be regarded as a blunder in reasoning ; and the exclusion of this group in the Relative Health Standard is its greatest merit.

POPULATION and Deaths in Town and Country Districts, Tasmania (Year 1890), under Age-Groups.

NUMERICAL.

	ESTIMATED MEAN POPULATION.				DEATHS.				
	0-5.	5-65.	65 & over.	TOTAL.	0-5.	5-65.	65 & over.	TOTAL.	Under 1 year.
Hobart—City	3127	20,204	1049	24,380	177	184	116	477	135
Suburbs	1081	6529	754	8364	25	65	132	222	20
Total District	4208	26,733	1803	32,744	202	249	248	699	155
Launceston—City	2240	13,780	844	16,864	108	135	115	358	79
Suburbs	707	3130	159	3996	31	19	8	58	26
Total District	2947	16,910	1003	20,860	139	154	123	416	105
Country Districts	13,881	72,463	3786	90,130	350	392	261	1003	248
TOTAL TASMANIA	21,036	116,106	6592	143,734	691	795	632	2118	508

PERCENTAL.

Hobart—City	12·83	82·87	4·30	100·00	37·10	35·88	24·32	100·00	26·57
Suburbs	12·92	78·06	9·02	100·00	11·26	29·28	59·46	100·00	3·94
Total District	12·85	81·64	5·51	100·00	28·90	35·62	35·48	100·00	30·51

PERCENTAL—*continued.*

	ESTIMATED MEAN POPULATION.				DEATHS.				
	0-5.	5-65.	65 & over.	TOTAL.	0-5.	5-65.	65 & over.	TOTAL.	Under 1 year.
Launceston—City	13·29	81·91	5·00	100·00	30·17	37·71	32·12	100·00	15·55
Suburbs	17·69	78·34	3·97	100·00	53·46	32·76	13·79	100·00	5·12
Total District	14·13	81·06	4·81	100·00	33·41	37·02	29·57	100·00	20·67
Country Districts	15·50	80·27	4·23	100·00	34·90	39·09	26·01	100·00	24·80
TOTAL TASMANIA	14·70	80·70	4·60	100·00	32·62	37·54	29·84	100·00	23·98

DEATH-RATE.

	DEATHS PER 1000 PERSONS LIVING.				HEALTH STANDARDS.		
	0-5.	5-65.	65 & over.	TOTAL.	All Ages under 65 per 1000 living.†	Infant mortality per 1000 Births.	Mean Age at Death of Group 65 and over.
Hobart—City	56·61	9·11	110·58	19·56	15·94	...	...
Suburbs	23·12	9·99	175·05	26·54	11·87	...	...
District	48·00	9·31	137·55	21·34	14·84	146	76·71
Launceston—City	48·21	9·80	136·25	21·22	15·29	...	...
Suburbs	43·85	6·07	50·31	14·51	11·47	...	...
District	47·16	9·54	122·98	19·94	14·91	145	75·48
Country Districts	25·21	5·41	68·94	11·10	8·24	82	76·37
ALL TASMANIA	32·90	6·85	95·88	14·74	10·57	106	76·18

* Including undefined. † Corrected for disproportion of Age-groups. (See method explained, p. xxv., Statistics, year 1887.)

The following table is prepared upon this method, to show the comparative healthiness of different countries :—

DEATHS during different periods in Tasmania at various Age-groups, computed independently in relation to Persons living at corresponding Age-groups, and compared with different Countries.

	Deaths per 1000 Persons.				
				Ages.	
	0-5. A.	5-65. B	65 & over. C	All Ages. Normal Standard.	Under 65 years. Corrected for Age-disproportion. (Relative Health Standard.)
New Zealand, 1890	20·19	6·13	80·72	9·58	8·14
Tasmania, 1890	32·90	6·85	95·88	14·74	10·57
Ditto, average of 10 years, 1881-1890.....	34·56	7·61	93·51	15·55	11·46
South Australia, 1890	29·46	6·22	174·70	12·24	9·06
New South Wales, 1889	41·88	6·73	72·23	13·43	12·28
Queensland, 1889	45·98	9·01	55·14	15·44	14·85
Victoria, 1890	42·65	9·14	109·84	16·10	13·93
Western Australia, 1890 ...	30·63	...	...	11·97	...
England, 1889.....	51·14	8·44	87·16	17·87	14·56

These figures clearly establish the superior health conditions of New Zealand, South Australia, and Tasmania as compared with the other countries with which they are contrasted; and the analyses also show that their health condition would not be correctly indicated by the total death-rate.

COMPARATIVE Healthiness of various Cities, as indicated by Death-rates.

		Death-rates per 1000 living.						
		Age-groups.				Relative Health Standard.	Mean Age of Deaths 65 and over.	Deaths under 1 Year per 1000 Births.
		0 - 5.	5 - 65.	65 and over.	All Ages.	All Ages under 65 corrected for Age-disproportion.		
	Average.	A	B	C	D	E	F	G
Hobart City and Suburbs	1888	47·70	10·35	105·75	21·04	15·69	76·23	142
Ditto	1889	46·95	9·59	99·87	19·95	14·93	75·52	150
Ditto	1890	48·00	9·31	137·55	21·34	14·84	76·71	146
Adelaide and Suburbs	1888	41·40	12·00	133·50	19·04	16·20	...	203
Ditto	1889	40·81	9·90	184·47	18·63	14·32	...	160
Ditto	1890	34·67	9·50	107·10	16·60	13·09	...	...
Sydney and Suburbs	1887	57·06	8·69	29·75	16·19	15·60	...	141
Ditto	1889	62·09	8·03	61·21	16·64	15·75	...	172
Melbourne and Suburbs	1889	83·49	12·27	107·90	23·39	22·44	...	194
Ditto	1890	60·75	10·84	100·78	19·18	17·97	...	...
Brisbane and Suburbs	1887	73·84	9·49	54·21	18·91	18·68	74·2	166
London	1886	63·7	9·55	91·98	19·90	17·29	75·37	159
Ditto	1887	64·2	9·35	85·34	19·50	17·19	...	158
Ditto	1889	55·52	8·91	85·72	18·05	15·57	...	...
Glasgow	1885	86·20	13·90	77·71	25·90	24·23	73·99	156
Dublin	1886	70·02	16·03	79·27	25·95	23·74	75·28	156
Ditto (North and South)	1887	90·43	18·75	151·38	32·97	28·99	...	190

PERCENTAGE of Deaths occurring at specific Ages during the decade 1880–89, and the Years 1889 and 1890.

Age.	Average of Decade 1880-9.	1889.	1890.	Age.	Average of Decade 1880-9.	1889.	1890.
Under 1...	23·53	24·12	23·99	Under 65...	5·86	4·33	5·24
„ 2...	4·31	3·82	4·58	„ 70...	6·68	6·43	6·56
„ 3...	1·84	1·47	1·65	„ 75...	14·10	6·77	7·37
„ 4...	1·21	1·29	1·28	„ 80...		5·39	7·74
„ 5...	9·96	1·05	1·13	„ 85...	6·56	3·82	4·63
„ 10...	3·01	4·86	4·01	„ 90...		2·38	2·31
„ 15...	5·02	2·71	1·75	„ 95...	0·75	0·61	0·80
„ 20...		3·40	2·60	„ 100...		0·20	0·38
„ 25...	7·58	4·05	3·72	100 and over	0·07	0·09	
„ 30...		4·29	3·59	Undefined ...	0·14	0·09	0·04
„ 35...	5·29	3·62	3·26				
„ 40...		2·72	2·83	Under 5.....	31·85	31·75	32·63
„ 45...	5·24	2·24	2·22	5 & under 65..	39·84	42·47	37·54
„ 50...		3·33	2·41	65 & upwards	28·16	25·69	29·79
„ 55...	7·84	3·15	2·65	Undefined ...	0·14	0·09	0·04
„ 60...		3·77	3·26				

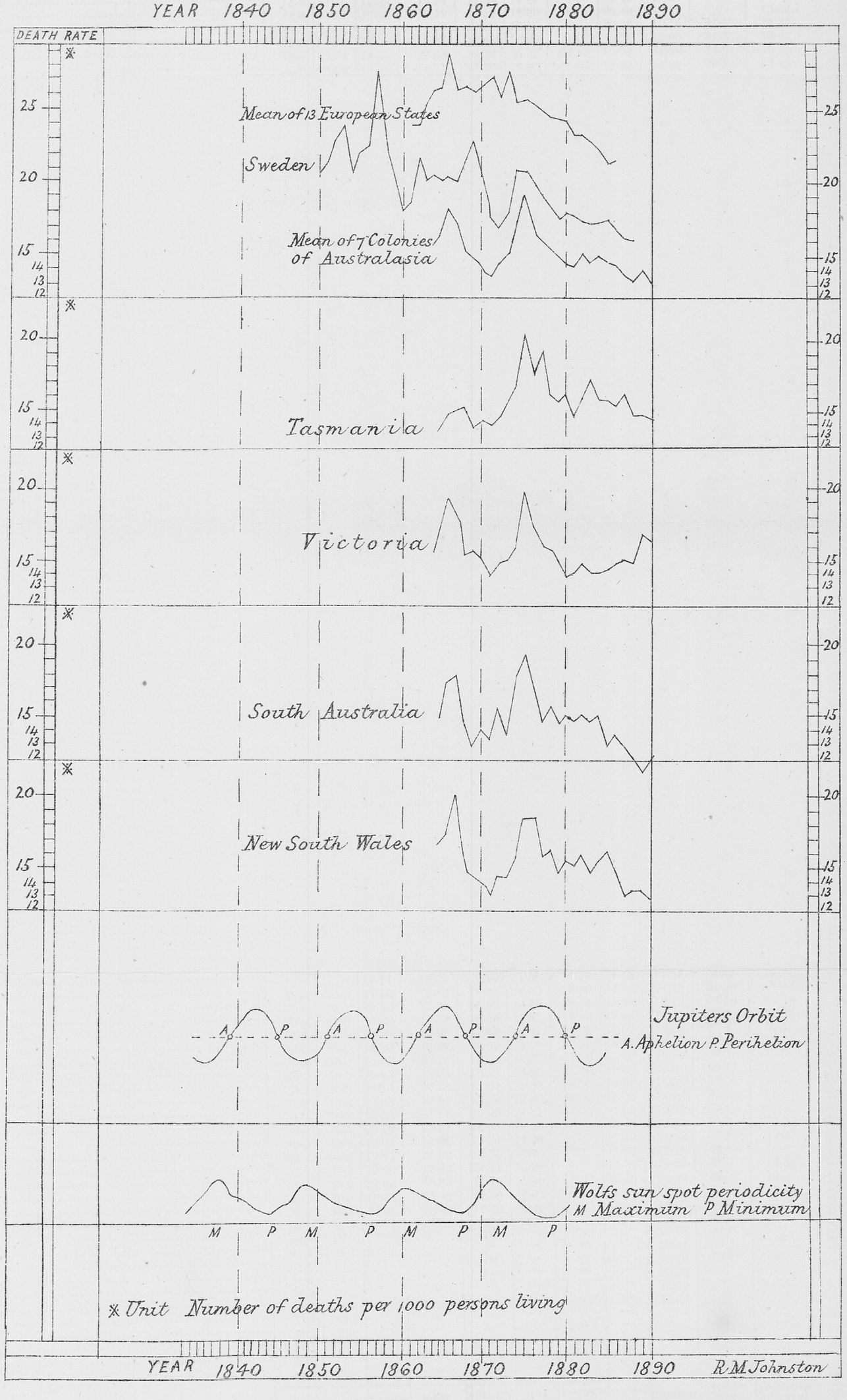
The analysis of this table shows that the percentage of deaths in 1889 and 1890 under five years and above 65 years is slightly below the average: the percentage of deaths between 20 and 65 is much below it.

Comparative Annual Death-rate of various Countries.

	Europe.		Australasia.							Mean of principal States of Europe.	Mean of the Seven Colonies of Australasia
	England.	Sweden.	Victoria.	New South Wales.	South Australia.	Queensland.	Western Australia.	New Zealand.	Tasmania.		
1843	21·2	...	...	...	...	...	...	...	...	...	...
1845	20·9	...	...	...	...	...	...	...	...	...	...
1848	24·7	...	...	...	...	...	...	...	...	...	...
1851	22·0	20·8	...	...	...	...	...	...	...	...	...
1853	22·9	23·7	...	...	...	...	...	...	...	...	...
1856	20·5	21·8	...	...	...	...	...	...	17·80	...	...
1857	21·8	23·7	...	...	...	...	...	...	17·10	...	...
1860	21·2	17·6	...	...	...	...	...	...	19·92	...	...
1861	21·6	18·5	...	...	...	...	...	...	16·36	23·4	...
1862	21·4	21·4	...	...	...	...	...	...	15·01	23·1	...
1863	23·0	19·3	...	...	...	...	...	...	15·49	24·4	...
1864	23·7	20·2	...	...	...	...	...	...	15·34	25·5	...
1865	23·2	19·4	16·97	16·41	14·30	21·42	...	15·13	13·40	26·0	16·3
1866	23·4	20·0	19·37	17·47	17·20	25·67	...	12·86	14·19	28·8 *	17·7 *
1867	21·7	19·6	18·06	19·64	17·48	17·80	...	12·78	14·44	25·5	16·7
1868	21·8	21·0	15·00	15·83	14·41	17·36	...	11·94	14·75	25·9	14·9
1869	22·3	22·3	15·47	14·05	12·37	16·20	...	11·73	13·24	25·4 †	13·8
1870	22·9	19·8	14·61	13·27	13·94	14·59	...	11·13	14·08	26·1	13·6
1871	22·6	17·2	13·46	12·54	12·87	14·83	...	10·13	13·46	27·0	12·9 †
1872	21·3	16·3	14·38	14·11	15·33	14·97	14·02	11·68	13·83	25·4	14·0
1873	21·0	17·2	15·02	13·84	13·48	16·06	16·24	12·67	14·60	27·4 *	14·6
1874	22·2	20·3	15·72	15·12	17·05	17·98	18·74	13·05	16·22	25·0	16·3
1875	22·7	20·2	19·42	18·09	19·45	23·80	17·88	15·92	20·01	25·4	19·2 *
1876	20·9	19·5	17·02	18·11	16·28	18·82	14·18	12·66	16·87	24·3	16·2
1877	20·3	18·5	15·80	15·28	13·99	17·29	15·70	11·47	19·19	23·9	15·5
1878	21·6	18·0	15·46	15·88	15·44	20·41	14·07	11·01	15·67	24·2	15·4
1879	20·7	16·9	14·53	14·29	14·09	14·97	14·46	12·46	15·18	23·7	14·3
1880	20·6	18·1	13·70	15·57	14·85	13·59	13·24	11·46	16·12	24·29	14·0 †
1881	18·9	17·7	14·16	15·12	14·49	15·02	13·80	11·13	14·88	23·30	14·0 †
1882	19·6	17·4	15·11	16·03	15·15	17·99	14·16	11·19	15·98	23·51	15·2
1883	19·5	17·3	14·18	14·57	14·86	18·82	17·93	11·45	17·36	22·93	14·45
1884	19·6	17·5	14·27	15·88	15·24	22·97	21·87	10·39	15·88	22·02	15·09
1885	19·0	17·8	14·73	16·42	12·48	19·58	17·61	10·76	15·89	21·31 †	14·83
1886	19·3	16·6	15·14	14·89	13·63	16·76	21·67	10·54	15·15	21·75	14·34
1887	18·8	16·1	15·70	13·15	12·77	14·56	16·83	10·29	16·15	...	13·64 †
1888	17·8	16·0	15·34	13·54	11·96	14·66	16·00	9·43	14·84	...	13·41
1889	17·8	...	17·56	13·43	10·94	15·44	14·19	9·40	14·96	...	14·28
1890	...	...	16·10	12·90	12·24	13·60	11·97	9·58	14·74	...	13·38

* Maximum years. † Minimum years.

DEATH RATE PERIODICITY OF VARIOUS COUNTRIES COMPARED



Typhoid Epidemic.

During the year 1887 the Island was visited by an extraordinary and violent epidemic of Typhoid or Enteric Fever. Although affecting urban and country districts, it was in the former alone that this malign disease raged with intensity. No less than 112 valuable lives were lost to the Colony, mostly in the prime of life, and the greater part of these deaths (70, or 62·5 per cent.) occurred within the Registration District of Hobart.

Hitherto Hobart was the more favoured locality as regards immunity from this disease, and it is remarkable, therefore, that the epidemic of 1887 should there rage with greatest intensity. It will be seen, from the following table, that Typhoid in some form has never been absent from the Colony; and whatever may be the immediate combination of conditions favouring its development, and however certain it may be that neglect of hygiene forms a most important factor, it is certain that there are other obscure conditions, beyond human control, which, at stated times, produce greater activity or virulence in the specific disease germs.

Deaths from Typhoid, Measles, and Scarlatina, in Tasmania.

Year.	Hobart District.			Launceston District.			Country Districts.			All Tasmania.		
	Typhoid,&c.	Measles.	Scarlatina.	Typhoid,&	Measles.	Scarlatina.	Typhoid,&c.	Measles.	Scarlatina.	Typhoid,&c.	Measles.	Scarlatina.
1838	1											
1839	9											
1840	18											
1841	2											
1842	21	...	22									
1843	20	...	36									
1844	12	...	1									
1845	4											
1846	6											
1847	9											
1848	13											
1849	8											
1850	14	2	1									
1851	12	1	6									
1852	18	...	28									
1853	12	1	256									
1854	16	79	10									
1855	21	4	2									
1856	13											
1857	6	...	1									
1858	8	...	9									
1859	12	...	3									
1860	9	...	1									
1861	18	22										
1862	12	...	2									
1863	17	...	1									
1864	4	...	6									
1865	1	...	1									
1866	5	...	1									
1867	5	11	1									
1868	4	...	...	...	...	...	...	...	...	32		
1869	4	...	...	..	...	...	...	...	...	32	...	3
1870	6	...	...	...	...	...	...	...	...	26		

DEATHS from Typhoid, &c.—*continued.*

Year.	Hobart District.			Launceston District.			Country Districts.			All Tasmania.		
	Typhoid,&c.	Measles.	Scarlatina.	Typhoid,&c.	Measles.	Scarlatina.	Typhoid,&c.	Measles.	Scarlatina.	Typhoid, &c.	Measles.	Scarlatina.
1871.....	...	...	...	..	...	...	...	...	...	8	2	7
1872.....	11	...	...	...	...	...	...	...	...	30	1	3
1873.....	12	...	10	...	...	...	...	...	...	24	...	10
1874.....	11	...	7	...	...	...	...	...	...	44	...	21
1875.....	20	38	8	...	...	...	...	...	...	50	129	31
1876.....	5	...	20	...	...	...	...	...	...	26	1	97
1877.....	17	...	53	...	...	...	...	...	...	41	2	197
1878.....	13	...	...	...	...	...	...	...	...	50	...	7
1879.....	7	...	...	...	...	...	...	...	...	38	...	2
1880.....	7	...	...	...	...	...	...	...	...	29	...	1
1881.....	...	6	...	...	...	...	...	...	...	33	45	7
1882.....	5	...	4	16	...	6	15	...	10	36	...	20
1883.....	10	...	7	26	...	1	28	...	2	64	...	10
1884.....	16	1	7	19	...	1	15	...	4	50	1	12
1885.....	14	9	...	11	1	...	5	10	...	30	20	...
1886.....	9	1	...	25	...	...	13	...	...	47	1	...
1887.....	70	...	2	27	...	...	15	...	...	112	...	2
1888.....	37	...	2	30	...	2	13	...	1	80	...	5
1889.....	41	...	1	40	...	...	32	...	...	113	...	1
1890.....	17	...	...	14	...	...	18	...	...	49	...	...
1891.....	57	...	...	...	...	...	...	...	...	...	...	...

NOTE.—Particulars for Launceston, Country Districts, and All Tasmania are not available for the years left blank.

As it is of the greatest importance that we should have as clear a knowledge as possible of this terrible disease, I have thought it desirable to reproduce the following extracts on the subject from Dr. Hirsch's splendid work on Geographical and Historical Pathology :—

Typhoid Fever.

"Associated with certain conditions of locality. In its *mode of occurrence and diffusion in space* typhoid shows a peculiarity which distinguishes it very characteristically from all other acute infective diseases, and stamps it as a morbid process intimately bound up in its origin with *conditions of locality*. Typhoid occurs sporadically unusually often ; in many other instances it is prevalent as an endemic ; or, finally, it attains to an epidemic effusion of longer or shorter duration. But these typhoid endemics or epidemics are always confined within local limits ; they never spread over considerable tracts of country ; the disease has never assumed the character of a widespread epidemic or of a pandemic. And if there have been, from time to time, epidemic outbreaks of it simultaneously at many places near to or remote from one another, these have not had any intimate connexion, as in the case of wide-spread epidemics of cholera, scarlatina, typhus, or yellow fever ; but it is generally in them a matter of local conditions making themselves felt at a number of points simultaneously, but independently of each other.

"The epidemics of typhoid fever," says Besnier, "are *local* epidemics, and their exacerbations are absolutely *local* also. While typhoid was raging in an intense form at Lyons, not long ago, I took the trouble to ascertain that its type

at Paris was simple and benign. While it is to-day raging at Paris severely and extensively, it continues rare and benign elsewhere, even in the same country at the same moment, often even within the same town, and under a perfectly uniform constitution of the atmosphere."

"Typhoid in this respect connects most closely with malarial diseases, without, however, attaining the same wide diffusion. This strictly local character of the disease comes out with quite peculiar prominence in the fact that it very often remains confined to single quarters of a town, to single streets or groups of houses, not unfrequently even to single buildings, to institutions for the reception of certain classes, such as barracks, educational institutes, boarding houses, and prisons, or even to private houses, the whole neighbourhood round the narrowly circumscribed focus of disease enjoying a complete immunity.

"The smallest mortality (326), and the largest (1208), both occur in years (1878 and 1872) with moderate rainfall (the mean for fifteen years at Berlin being 260·64‴); the second largest (939) falls in a very wet year; but there is no constant relation discoverable between the volume of the annual rainfall and the height of the death-rate. The following table shows the relation between the death-rate in autumn and the kind of weather in the preceding summer:—

TABLE of the Autumnal Death-rate from Typhoid at Berlin, and of the Weather during the previous Summer.

Year.	No. of Deaths.	Summer.		Autumnal.	
		Temperature.	Rainfall.	Temperature.	Rainfall.
1871	280	13·86R.	115·20‴	6·25R.	43·86‴
1878	121	14·60	94·59	8·62	30·38
1877	253	15·53	89·28	7·48	51·48
1873	236	14·39	81·51	8·20	51·70
1876	205	15·26	62·94	7·40	65·12
1875	344	15·86	62·17	6·56	99·04
1874	260	14·88	54·91	8·54	22·47
1872	596	14·78	39·47	9·20	79·58

"The severest autumnal epidemic (1872), under a very high temperature and copious rains, followed on a very dry and moderately warm summer; the next most severe autumnal epidemic (1875) falls in a cool and very wet autumn, which had been preceded by a warm and moderately damp summer; the third in order of severity (1871), under a very cool temperature (*i.e.*, 1·25° R. below the mean) and moderate rains, followed an excessively wet (nearly 30‴ above the mean) and cool summer; and the circumstances of the fourth severe epidemic (1877) are similar. The smallest mortality (1878) falls in a warm and dry autumn, which had been preceded by a moderately warm and very wet summer. Lastly, I shall advert to the circumstances in question as they obtained in the two severe winter epidemics of 1871-72 (229 deaths), and 1872-3 (218 deaths); the winter of 1871-72 was cold and moderately dry, and was preceded by a dry and cold autumn; the winter of 1872-73 was unusually warm and dry, but it was preceded, on the other hand, by a very warm and damp autumn.

"There are few points in the etiology of typhoid on which there is so much agreement in the opinions of observers as on the influence exerted by these nuisances on the development of epidemics or endemics of typhoid, or on the occurrence of isolated cases; although there is still much difference of opinion as to the import of the connection which subsists between the cause of the disease and the morbid condition ensuing. The best evidence of this connection has been obtained naturally from experiences in small narrowly circumscribed and more easily surveyed fields of observation—in single houses, public institutions, and the like. It is just in these cases that one learns how, amidst seemingly good hygienic circumstances, the conditions for an outbreak of typhoid fever are furnished by badly laid, insufficiently emptied, choked, or ill-ventilated drains, by leaking or over-filled cesspools, and the like; we see cases of typhoid, singly or in groups, beginning to occur from the moment the noxious influences associated with these nuisances make themselves felt and precisely among those who occupy the rooms or buildings exposed to those influences in one way or another (of which more anon), and we find that the attacks cease to occur when the defects are repaired. But evidence on a large scale for the importance of this etiological factor in the production of typhoid is furnished by the lowering of the typhoid sick-rate and death-rate in towns through attention to the cleansing of fæcal matters from the streets, the houses, and the soil, and through an efficiently carried-out system of drainage and sewerage; and this evidence comes mostly from the country which takes incontestably the first place among the States of Europe for its sanitary administration, as laid down by statute—I mean England."

Influence of Season as regards Typhoid.

There can be no doubt that climate and season are very important factors as regards the prevalence or intensity of Typhoid. As regards season, it has been observed that, whether the number of deaths in any year be few or many, the relative mortality usually follows a regular curve of intensity, rising rapidly from December to its highest point in March and April, and falling still more abruptly to the beginning of its minimum period, commencing in July and closing with November. Thus the mean of the last seven years shows that the proportion of deaths in the first six months exceeds the second six months by 69·09 per cent.; thus—

Year.	Deaths during first Six Months.	Deaths during second Six Months.	Total.	Deaths per 10,000 of population.
1882	24	12	36	3·01
1883	57	7	64	5·23
1884	41	9	50	3·99
1885	21	9	30	2·34
1886	37	10	47	3·60
1887	83	29	112	8·37
1888	64	16	80	5·83
1889	86	27	113	8·06
1890	33	16	49	3·41

Average rate for last ten years, 4·73.

The following gives the mean percentage value of each month during last six years:—

PERCENTAGE of Deaths for each Month.

Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
8·82	13·92	16·01	17·87	13·00	5·57	7·19	3·94	3·94	3·71	2·09	3·94	100

The high death-rates due to Typhoid in the years 1887 to 1889 are quite exceptional for Tasmania, and it is gratifying to be able to record that the results of the current year shows a marked decline in the number of deaths from this extraordinary epidemic.

In Queensland and New Zealand, however, even the high rate of 1887 has been exceeded, as shown in the following abstract:—

		Rate per 10,000.
Queensland	1875	9·16
New Zealand	„	9·47
Queensland	1878	9·53
Ditto	1883	8·89
Ditto	1884	18·15
Ditto	1886	9·14

The 1883 rate for Tasmania, the third highest for this Colony, has also been exceeded in Victoria and New South Wales, as follows:—

		Rate per 10,000.
New South Wales	1876	6·49
Victoria	1877	6·58
Ditto	1878	6·48
New South Wales	„	6·50
Victoria	1883	7·26
Ditto	1887	6·19
Ditto	1888	5·09

Typhoid in relation to Latitude and Climate.

Particular climates and latitudes favour the development of particular diseases to which they are peculiarly restricted; and in widely distributed diseases, such as Typhoid, particular climates and latitudes have a direct influence in favouring the greater intensity of its attack. Of course, altitude and other local circumstances may powerfully counteract the general influence in some places; but, nevertheless, speaking in a broad way, it is apparent that the attacks of Typhoid diminish in intensity in either hemisphere in passing from the equatorial to the polar latitudes; and just the reverse of this sometimes happens in other diseases. The data for establishing these conclusions are far from perfect, but still those obtainable unmistakably favour them.

AVERAGE Intensity of Typhoid, according to Latitude. Rate per 10,000 living.

Latitudes..	0-30.	30-50.	50-60.	60 and over.
NORTHERN.	...	Italy ..... 9·37	Scotland 3·77	Sweden 2·87
	...	Austria ..... 7·31	Ireland . 3·57	Russia . 2·07
	...	Spain ..... 5·63	England 2·70	
SOUTHERN.	Queensland 9·14	N. S. Wales 5·23		
	...	Victoria .... 5·23		
	...	New Zealand 3·87		
	...	Tasmania ... 3·49		

The hygiene, or healthiness, as a whole, of any one locality, therefore, cannot be properly estimated in contrast with any other by reference to the intensity of any one form of disease, because the prevailing diseases of different countries vary with the climate and latitude. In making contrasts of this kind between place and place, conclusions based upon any single form of disease would be misleading. The effects of all forms of disease are alone satisfactory in such comparisons.

Typhoid Epidemic in Hobart.

Influence of Age, Sex, and Occupation.

Apart from the acknowledged influence of the hygienic conditions of different localities in connection with typhoid, it cannot be overlooked that there are many matters connected with its fatal ravages which cannot be wholly accounted for by the hygienic conditions of the locality, nor by the alleged intrusion of the germs of the disease from suspected sources by the distribution of water, milk, or food. Undoubtedly, the intensity of the attack is aggravated by bad hygienic conditions; and its spread is intimately connected in many cases with the distribution of water, milk, and food from poisonous centres. But while this is readily acknowledged, it does not fully explain the remarkable immunities of certain localities within the epidemic areas where the hygienic conditions of the place are not only notoriously defective, but are often aggravated by the careless habits of the residents of such localities. It fails also to explain the remarkable fluctuations of different years—*e.g.*, in Hobart the death-rate from typhoid per 10,000 persons was as high as 8·37 in 1887; fell to 5·83 in 1888; rose again to 8·06 in 1889, and fell as low as 3·41 in 1890. So far as can be known, the hygienic conditions and precautions of these years were unaffected by any change. Again, it neither explains the remarkable immunity of the very young and the aged, nor the comparative immunity of females at corresponding ages to those most fatally attacked among males. The analysis of occupations also fails to make any disclosure which would point out significantly the danger of particularly noxious or uncleanly occupations. As there are many apparent anomalies, and much that is obscure in relation to the causes of the varying intensity of typhoid, it was therefore deemed advisable to make the following additional analyses of 197 deaths from typhoid occurring in the District of Hobart between the years 1886, 1887, 1888, 1889, 1890, and 1891, in order that those specially concerned may be the better enabled to gauge the nature of this loathsome disease.

Immunities relating to Age and Sex.

ANALYSIS of 197 Fatal Cases of Typhoid in the District of Hobart in the Years 1886-1891.

Age.	Deaths No.			Per Cent. to Total.			Percentage of Females to Males.	Estimated Annual Death-rate per 100,000 living.*		
	Persons.	Males.	Females.	Persons.	Males.	Females.		Persons.	Males.	Females.
under 5	1	...	1	·50	...	1·52	100·00	5	...	9
5 to 10	2	2	...	1·02	1·53	...	...	11	21	...
10 „ 15	10	7	3	5·08	5·34	4·55	42·86	58	82	34
15 „ 20	21	13	8	10·66	9·92	12·12	61·54	138	191	98
20 „ 25	45	29	16	22·84	22·14	24·24	55·17	282	407	182
25 „ 30	42	24	18	21·32	18·32	27·27	75·00	269	371	173
30 „ 35	31	25	6	15·74	19·09	9·09	24·00			
35 „ 40	19	16	3	9·65	12·21	4·55	18·75	171	278	64
40 „ 45	8	6	2	4·06	4·58	3·03	33·33			
45 „ 50	5	2	3	2·54	1·53	4·55	150·00	133	147	117
50 „ 55	9	5	4	4·57	3·82	6·06	80·00			
55 „ 60	...	...	...	...	...	...	...	24	25	23
60 „ 65	2	1	1	1·02	·76	1·51	100·00			
65 „ 70	1	...	1	·50	...	1·51	100·00	23	19	28
70 and over	1	1	...	·50	·76	...	...			
	197	131	66	100·00	100·00	100·00	50·33	124	169	81

* Including 34 unspecified cases as regards age, &c.

DEATHS from Typhoid in Relation to Occupations.

Occupation.	Persons living Estimated.	Deaths.	Annual Deaths per Year per 10,000 living in each Class.*
Professional	1407	8	1·14
Domestic Service	2340	13	1·11
Commercial	2513	19	1·51
Transport and Communication	1533	7	·91
Industrial	5028	75	2·98
Agricultural, Pastoral, and other Primary Producers	527	9	·34
Indefinite	347	5	·29
Dependent Wives and Children, &c.	18,150	61	·67
ALL	31,850	197	1·24

* Including 34 unspecified cases as regards age, &c.

The analyses of the two preceding tables show that of the 197 specified deaths during the six years in the district of Hobart there were 131 males and 66 females, *i.e.* the latter were only equal to half of the former. The deaths between 20 and 25 represented 22·84 per cent., or nearly one-fourth of all ages ; and the deaths between 15 and 40 represented 80·21 per cent. of the whole.

As regards occupations, it is also revealed that breadwinners of the industrial class suffered most severely, the following being the order beginning with those showing the highest rate of mortality :—

Occupations.	Deaths per 10,000 living in each class.
1. Industrial	2·98
2. Commercial	1·51
3. Professional	1·14
4. Domestic Service	1·11
5. Transport and Communication	·91
6. Dependent wives, children, &c.	·67
7. Agricultural, Pastoral, and other Primary Producers	·34
8. Indefinite or no Occupation	·29
ALL	1·24

Of the 197 specified deaths, 118 or 59·90 per cent. occurred in the General Hospital ; and of these only 75 or 63·55 belonged to the City ; 12 or 10·18 per cent. belonged to the Suburbs ; and 31 or 26·27 per cent., *i.e.* more than one-fourth belonged to various parts of the island beyond the District. In the year 1891, out of 26 fatal cases in the General Hospital 11 or 42·30 per cent. were neither residents of the City or District. The larger number of the latter were cases brought from Zeehan and Strahan.

INFANTILE MORTALITY.

In the following table is shown the Infantile Death-rate each year during the last 22 years :—

DEATHS under 1 year of age per 100 Births.

1867	8·98	1875	13·11	1883	12·39
1868	11·73	1876	9·08	1884	9·98
1869	10·18	1877	11·37	1885	11·26
1870	9·76	1878	10·71	1886	10·48
1871	8·52	1879	10·77	1887	10·09
1872	10·17	1880	11·23	1888	9·43
1873	8·73	1881	10·34	1889	10·64
1874	10·36	1882	10·36	1890	10·55

Mean of 23 years, 1867-1890, inclusive, 10·42.

It will be seen from this table that the infantile mortality rate during 1890 is slightly above the average of the last 24 years ; though this average, upon the whole, is a very satisfactory index of the health of the Island, as, next to New Zealand, it compares most favourably with other countries, as shown in the following classified order, beginning with the lowest or most favourable ; thus :—

Infantile Mortality in various Countries compared.

					Deaths under 1 year per 100 Births.
1. New Zealand	...	mean of 19 years,	1866-1889*	...	9·65
2. Tasmania ...	...	„ 23 „	1867-1890	...	10·42
3. New South Wales ...		„ 19 „	1866-1889*	...	11·43
4. Victoria ...	...	„ 19 „	„ *	...	12·54
5. Queensland...	...	„ 19 „	„ *	...	12·97
6. South Australia	...	„ 19 „	„ *	...	13·77
7. England ...	...	„ 10 „	1879-1888	...	14·41

* The figures marked with a star are taken from Hayter's *Year Book* (1887-8, p. 334.)

From this table it appears that the Colonies are more favourable to infant life than England. The Infantile Death-rate of England is best contrasted with that of Tasmania, by stating that if it were as low as that of Tasmania, the lives of 35,351 infants in the year 1889 would have been saved to England. The significance of this loss is best appreciated when we consider that it represents as much as 78·54 per cent. of the total deaths from all forms of miasmatic disease in that country, which in 1889 represented 45,010 deaths.

Deaths and Diseases in Hospitals.

Class of Disease.	Cases treated.							
	1889.				1890.			
	In-patients.	Out-patients.	All Cases.	Per cent. to Total.	In-patients	Out-patients.	All Cases.	Per cent. to Total.
Zymotic	678	273	951	22·57	504	384	888	19·19
Parasitic	19	38	57	1·35	13	58	71	1·53
Dietic.....	67	6	73	1·73	94	5	99	2·14
Constitutional	223	196	419	9·94	261	187	448	9·69
Developmental	33	33	66	1·57	52	25	77	1·67
Local.....	879	1088	1967	46·68	1130	1184	2314	50·00
Violence	267	175	442	10·49	336	152	488	10·55
Ill-defined & non-specified	94	145	239	5·67	88	154	242	5·23
Total	2260	1954	4214	100·00	2478	2149	4627	100·00

DISEASES and Deaths in Hospitals—*continued.*

CLASS OF DISEASE.	DEATHS.											
	1887.			1888.			1889.			1890.		
	No.	Per cent. to Total Deaths.	Per cent. to Class Cases.*	No.	Per cent. to Total Deaths.	Per cent. to Class Cases.*	No.	Per cent. to Total Deaths.	Per cent. to Class Cases.*	No.	Per cent. to Total Deaths.	Per cent. to Class Cases.*
Zymotic	81	28·32	10·19	49	19·07	7·85	69	27·82	10·18	41	19·43	8·14
Parasitic	5	1·75	35·71	1	0·39	12·50	5	2·02	26·32	—	—	—
Dietic	—	—	—	2	0·78	2·35	2	0·81	2·99	1	0·48	1·06
Constitutional	48	16·78	19·35	39	15·17	16·81	32	12·90	14·35	40	18·95	15·32
Developmental	10	3·50	19·23	19†	7·39	44·19†	12†	4·84	36·36†	13	6·16	25·00
Local	127	44·41	11·81	126	49·03	12·99	102	41·13	11·61	99	46·92	8·76
Violence	14	4·89	4·33	19	7·39	6·55	24	9·68	8·99	12	5·69	3·57
Ill-defined and non-specified	1	35	1·59	2	0·78	2·56	2	0·80	2·13	5	2·37	5·88
TOTAL	286	100·00	10·87	257	100·00	11·07	248	100·00	10·97	211	100·00	8·52

* Deaths of out-patients not being recorded in relation to Hospitals, the percentages are calculated relative to cases of in-patients.
† All these cases died of "old age."

Relative to the number of cases treated as In-patients, the number of deaths represent 8·52 per cent., which, compared with the year 1889, is 2·45 lower.

DEATHS in the Public Institutions situated in the Districts of Hobart and Launceston, 1890.

Number of Deaths under each Age-group—

District.	1890.				
	0–5 years.	5–65 years.	65 years and over.	Ages not defined.	All Ages.
	No.	No.	No.	No.	No.
Deaths in Public Institutions—					
Hobart	3	85	143	—	231
Launceston	5	48	66	—	119
Total	8	133	209	—	350
Per cent. to Total Deaths, 1890	2·29	38·00	59·71	—	100·00

Thus it is shown that aged people contribute 59·71 of the total number of deaths in these Public Institutions. This is largely due to the deaths occurring in the Invalid Establishments for aged and infirm persons, which represent nearly half of the total deaths in all the Public Institutions, specified as follows :—

	No. of Inmates on 31st Dec. 1890.	No. of Deaths, 1890.
Hobart—		
New Town Charitable Institution	540	126
Hospital for Contagious Diseases	—	—
Hospital for Insane, Cascades	31	—
General Hospital	75	103
Gaol for Males	125	2
Ditto for Females	17	—
Total, Hobart	788	231

	No. of Inmates on 31st Dec. 1890.	No. of Deaths, 1890.
Launceston—		
Gaol	32	6
Hospital	71	63
Invalid Depôt	211	50
Hospital for Contagious Diseases	5	—
Total, Launceston	319	119
Grand Total	1107	350

MARRIAGES.

The number of Marriages celebrated in Tasmania during the year 1890—955, or 6·64 per 1000 persons living—is less than that of the previous year by 12; and, relatively, our marriage-rate for the year 1889 is less than the average marriage-rate of the last decade by 0·92 per 1000 persons living.

The following comparative table for the last 40 years shows how closely our marriage-rate corresponds with the fluctuations of external trade, which also is a most sensitive index of changes in material welfare :—

Period.	Marriages per 1000 Persons.		Total Value Export and Import Trade per head.
			£
Average of Five years, 1851–55*	18·85	...	44·17
Ditto, 1856–60	9·40	...	28·51
Ditto, 1861–65	7·24	...	19·66
Ditto, 1866–70	6·30	...	16·78
Ditto, 1871–75	6·37	...	18·78
Ditto, 1876–80	7·51	...	24·01
Ditto, 1881–85	8·02	...	25·70
Ditto, 1886	7·55	...	23·58
Ditto, 1887	7·02	...	22·77
Ditto, 1888	7·00 6·93	... 22·66	21·47
Ditto, 1889	6·89	...	21·90
Ditto, 1890	6·64	..	23·60

* The period when, owing to the discovery of gold in Victoria, an extraordinary development of trade in Tasmania took place.

This table is confirmatory of opinions on the subject advanced by the Registrar-General of England; and it shows that the corresponding rise and fall between the marriage-rate and the value and extent of trade in each period have a most intimate relation with each other, and can in no way be regarded as a mere coincidence. In the diagram prepared to show the progress of the Colony since the year 1816 this relationship is more readily appreciated.

The following table shows, in the order of the higher marriage-rate, the principal Districts and Divisions in Tasmania for the year 1890, together with figures for the previous three years for the purpose of comparison :—

	No. of Marriages.				No. of Marriages per 1000 Persons.			
	1887.	1888.	1889.	1890.	1887.	1888.	1889.	1890.
Urban Districts—								
Hobart	270	281	284	289	8·65	8·27	8·10	8·82
Launceston	248	225	211	210	12·71	10·76	9·79	9·79
Total Urban Districts...	518	506	495	499	10·21	9·21	8·74	9·21
Country Districts—								
South-Western Division...	16	12	25	26	3·67	2·81	5·69	7·21
North-Western Division..	156	177	166	164	6·77	7·86	7·16	6·49
South-Eastern Division ...	69	85	84	91	3·22	3·87	3·71	4·71
North-Eastern Division...	92	89	110	99	4·21	4·07	4·88	4·54
Midland Division	88	82	87	76	4·78	4·35	4·48	3·89
Total Country Districts	421	445	472	456	4·72	4·97	5·12	5·09
TOTAL FOR TASMANIA	939	951	967	955	6·70	6·58	6·50	6·64

Among country districts, it will be observed that, with respect to the higher marriage-rate, the North-Western Division of the Island generally maintains the leading position, although the South-Western Division has surpassed it during the year 1891. The very high marriage-rate in urban as compared with country districts has already been referred to. The absence of officiating ministers in some country districts has the effect of causing the marriage ceremony to be celebrated in urban districts in many places. Another reason for this difference, and perhaps the more important one, is that in urban districts the females are greatly in excess of males, while the converse of this is true in respect of country districts. Marriages, as a rule, are celebrated in the district in which the bride resides.

The extent to which marriages have been celebrated by the principal religious denominations, and comparisons with the three previous years, are shown as follows :—

	Marriages, 1887.		Marriages, 1888.		Marriages, 1889.		Marriages, 1890.	
	No.	Per cent. to Total.	No.	Per cent. to Total.	No.	Per cent. to Total.	No.	Per cent. to Total.
Church of England	276	29·31	258	27·21	284	29·37	274	28·69
Congregational Union	110	11·73	102	10·33	109	11·27	107	11·20
Wesleyan Methodist Church	136	14·50	133	13·97	146	15·09	141	14·76
Church of Rome	109	11·62	137	14·39	119	12·32	112	11·74
Presbyterian Church	103	10·98	75	7·88	81	8·38	97	10·16
Free Church of Scotland	48	5·12	74	7·77	68	7·03	53	5·55
Baptist Church	100	10·66	100	10·50	89	9·20	90	9·42
Primitive Methodist Church	24	2·56	42	4·41	37	3·83	38	3·98
All others	33	3·52	30	3·54	34	3·51	43	4·50
TOTAL	939	100·00	951	100·00	967	100·00	955	100·00

Thus it would appear that the first-mentioned denomination (the Church of England) celebrated 28·69 per cent. of all the marriages contracted during the year.

VACCINATION.

The number of persons vaccinated throughout the Island during the year 1890, according to Report of Secretary Central Board of Health, is 137. Of this number 107 cases, or 78·10 per cent., were seen on the eighth day, and only 86 cases, or 62·77 per cent., are reported as successful.

The compulsory clause of the Vaccination Act is not now enforced in Tasmania, and this accounts for the sudden fall in the numbers of those vaccinated.

REGISTRATION.

During the year 1890 there were added to the Births, Deaths, and Marriage Registers of Tasmania 8839 names.

The following shows the number of Registrations under the various heads for the year 1890, together with comparisons with the previous year and with the year 1880 :—

	1890.	1889.	1880.
Persons married	1908	1934	1680
Births	4813	4757	3739
Deaths	2118	2098	1832
TOTAL	8839	8789	7251

CHAPTER X.

Trade and Interchange.

EXPORTS AND IMPORTS.

THE total colonial and foreign trade of Tasmania for 1890, as represented by imports and exports, is shown as follows :—

	Amount.	Per Head.	Per Square Mile.
	£	£ s. d.	£
Imports.....	1,897,512	13 4 0	72·38
Exports.....	1,486,992	10 6 11	56·73
TOTAL.....	3,384,504	23 10 11	129·11

Taken together, the amount of the imports and exports for 1890 is £77,660 above the average of the last five years—or £2·96 per square mile. As compared with the year 1889 the imports show an increase of £286,477, or £10·93 per square mile ; and the exports an increase of £27,135 or 1·03 per square mile.

There are various disturbing influences in making comparisons between any two particular years ; and the only satisfactory mode of measuring the tendencies of trade by the means of export and import values is to compare the means of successive periods of greater duration than one year. The following table has been prepared upon this method. The extent and general tendency of our export and import trade of Tasmania during the last 61 years, with the exception of the first and last broken periods, is based upon the mean yearly value of each succeeding quinquennial period ; thus:—

MEAN Yearly Value of successive Quinquennial or lesser periods since 1822.

	Period.	Mean Yearly Value.			Mean Yearly Value of both Imports and Exports per square mile.
		Imports.	Exports.	Both.	
		£	£	£	£
1	Years 1822–25 inclusive	47,029	30,249	77,278	2·94
1	Years 1826–30 ditto.....	204,248	93,805	298,153	11·37
1	Years 1831–35 ditto.....	421,913	195,364	617,277	23·54
1	Years 1836–40 ditto.....	711,916	616,798	1,328,714	50·68
2	Years 1841–45 ditto.....	621,649	496,783	1,118,432	42·66
2	Years 1846–50 ditto.....	622,451	569,255	1,191,706	45·45
3	Years 1851–55 ditto.....	1,587,994	1,358,728	2,946,722	112·41
4	Years 1856–60 ditto.....	1,254,824	1,174,027	2,428,951	92·65
4	Years 1861–65 ditto.....	876,902	936,263	1,813,165	69·16
4	Years 1866–70 ditto.....	870,387	804,312	1,674,699	63·88
5	Years 1871–75 ditto.....	1,027,232	913,231	1,940,463	74·01
5	Years 1876–80 ditto.....	1,280,637	1,355,336	2,635,973	100·57
5	Years 1881–85 ditto.....	1,669,651	1,532,822	3,202,473	122·16
5	Years 1886–90 ditto.....	1,694,519	1,412,325	3,306,844	126·14

From the above table we can readily recognise five distinct periods marking the upward and downward tendency of the colonial and foreign trade of Tasmania.

The first period has a duration of 19 years (1825—1840) in which the combined values of imports and exports increased at an average rate of £2·98 *per square mile per year*; the second period, from 1841 to 1850 inclusive (10 years), when the values gently declined at the average rate of £0·52 *per square mile per year*; the third period, from 1851 to 1855 inclusive (5 years), when, owing to the gold discovery in Victoria, the values suddenly increased at an average rate of £13·39 *per square mile per year*; the fourth period, from 1856 to 1870 (15 years), marks an interval covering many important changes in the internal and external affairs of the Colony; among which may be noticed the withdrawal of English troops, and the consequent lessening of Imperial expenditure and local consumption. At the same time the temporary advantage gained during the former period (the third) was gradually passing away owing to the rapid development of Victoria. This Colony during the early part of the fourth period was largely dependant upon Tasmania for agricultural products; but, notwithstanding its increasing population, agriculture made progress in Victoria at a greater proportionate rate, and the effect of which was, ere the fourth period closed, to convert the principal consumer of our surplus agricultural products into one of our most formidable rivals in the grain markets of Australia.

It is not surprising, therefore, to find that during the interval of the fourth period the value of our export and import trade gradually declined at an average rate of £3·23 *per square mile per year*; and that the close of it was marked by general depression, financial difficulties, and even (1870) a decline in population.

From 1870 we enter upon the fifth period, when, owing to the introduction of railways, the eradication of scab in sheep, but principally to the discovery and development of our tin and gold resources, there has been a continuous upward tendency; the average rate for the latter period being £38·60 *per square mile per year*, or 60·43 per cent. above that of the five years' average ending in 1870.

Although the total nominal value of imports and exports during the years 1853-5 respectively exceeds even the nominal value of imports and exports during some of the recent years, it must not be inferred that the greater value is a fair index of the relative productiveness of the two periods so far as Tasmania is concerned; for if we analyse the exports during 1855, we will find that of the £1,428,629 total exports there was only a sum of about £838,000, or about 58 per cent. of the whole, representing the actual manufactures or produce of Tasmania; the remainder, equal to 42 per cent. of total exports, being re-exports the produce of manufactures of other countries. It is also important in making comparisons to note that the effect of enhanced prices during the gold-rush period was such that the quantities then exported at a nominal value of £838,000 would only represent about £555,580 of the same class of goods exported during the year 1882. From these considerations, notwithstanding the large nominal values of 1853-4, it is clear that Tasmania, in the last year, not only supplies locally a population of greatly above double the number, but, in addition, she exported (the produce of the Colony) £1,459,857, which, though only of this nominal value, actually represents more than three times the extent of the produce of the Colony exported in 1854.

Thus it is shown that mere reference to figures, without careful analysis and qualification, are apt to lead to very erroneous conclusions. Before satisfactory comparisons can be made as regards production and balance of

trade, it is necessary among other things to study the approximate effects produced by—

1. The various methods employed by importers, exporters, and Customs authorities in declaring nominal values.
2. The effect of different tariffs and prices, and the local effects of seasons or unusual disturbances.
3. The stimulating effects of foreign loans for the construction of public works such as railways, roads, and bridges,—first, upon imports during construction, and afterwards upon exports, which are gradually augmented by returns from the newly created centres of production, in which of course are included exports representing the interest upon foreign loans so expended.
4. The relative proportion of goods imported for home consumption and goods destined for re-export in the same or in a different form, and in regard to the latter to note the probable increase in value due to the employment of local capital and labour, and local products.
5. The relative proportion of local and foreign products and manufacturers in total exports.
6. The allocation and distribution of the values due to shipping and commercial transit agencies.
7. The effects of natural resources; and in ratios, the effects of density of population and the extent of area.

These observations are sufficient to show that the interpretation of what may be considered the simple figures of ordinary statistical tables require some degree of care and skill. No table, however apparently simple, can be properly interpreted without qualification and discretion.

Direction of Imports.

It is difficult to arrive at the value of the import trade in respect of any particular country, the custom being to refer all imports, whether transhipments or re-exports, to the last port of clearance. Owing to the increasing facilities offered by steam communication, direct trade with Tasmania is falling off in favour of indirect trade principally through Victoria, which, from its geographical position, is our nearest point of junction with the great oceanic lines of steamers with Europe.

Detailed Summary of the Quantities and Values of External Trade— 1879 *to* 1890.

In the four following tables are given particulars of the quantities and values of the principal items of external trade of Tasmania for the years 1879 and 1886–90. These are, for greater convenience, arranged in a natural order of classification.

IMPORTS—QUANTITIES.

RETURN of the Quantities of some of the principal Articles imported into Tasmania, 1879 and 1886-1890.*

Class.	Order.	Articles.	1880.	1886.	1887.	1888.	1889.	1890.
I.	14	Manure .....tons	2467	12,680	5677	4067	3588	4080
		Spirits, Methylated .....gallons	346	1615	815	847	1106	910
II.	20	Corn Sacks .....No.	296,815	810,440	538,548	560,234		
		Bags, Gunny ..... ditto	172,754	56,984	9000	47,241	1,280,408	1,387,762
		Bags, other ..... ditto		109,994	98,943			
		Woolpacks .....ditto	38,809	21,111	37,629	34,434	39,337	24,520
		Beef and Mutton .....1000 lbs.	1047	549	791	2090	1169	418
III.	21	Butter, Cheese, and Lard .....lbs.	54,826	6780	24,382	341,973	394,622	75,490
	22	Flour .....1000 lbs.	58	446	2191	2439	699	2363
		Fruits—Dried ..... lbs.	421,346	591,621	689,891	718,613	676,890	681,119
		Fruits—Green .....bushels	...	16,386	24,685	18,898	22,060	29,583
		Grain—Wheat .....1000 lbs.	229	16,381	17,859	12,983	9496	11,195
		Rice .....ditto	983	1062	1619	1242	1231	1118
		Sugar ..... cwts	85,367	90,965	105,411	103,251	111,419	117,394
		Molasses.....ditto	421	666	888	1108	42	1262
	23	Cocoa and Chocolate .....lbs.	64,640	99,579	58,491	92,228	79,559	101,119
		Coffee ..... ditto	85,576	83,890	62,539	62,469	59,729	61,524
		Tea .....1000 lbs	725	862	937	1045	874	1027
		Spirits—						
		Brandy .....gallons	24,028	23,190	23,374	23,025	20,151	22,371
		Geneva .....ditto	20,772	15,193	15,442	12,813	13,696	14,261
		Gin .....ditto	705	1969	1616	1890	1279	1674
		Whisky .....ditto	11,163	26,557	25,039	27,664	24,221	28,928
		Rum .....ditto	23,393	24,145	22,651	24,903	22,261	25,021
		Cordials .....ditto	118	226	330	229	138	161
		Perfumed .....ditto	233	269	380	265	316	359
		Wines .....ditto	19,797	22,368	26,685	32,942	20,606	24,073
		Malt Liquors .....ditto	44,045	54,616	59,495	67,875	62,758	79,471
		Vinegar .....ditto	21,564	42,607	39,197	19,374	28,945	34,656

		Hops .....lbs.	5166	491	8465	5330	7553	4862
		Malt .....bushels	936	61	121	2673	1160	490
		Tobacco and Cigars.....lbs.	171,071	256,404	258,295	273,560	276,601	282,991
		Snuff .....lbs.	837	567	590	1026	694	609
IV.	24	Hides and Skins .....cwts.	2661	3787	4370	3259	1969	2605
		Tallow .....lbs.	121,895	509	3491	214,760	91,504	76,384
V.	28	Coal and Coke† .....tons	19,057	36,098	29,474	31,836	37,537	31,938
VI.	33	Live Stock—						
		Cattle.....No.	1708	601	1907	2975	2683	3657
		Horses.....ditto	29	83	70	43	151	752
		Sheep .....ditto	11,193	52,088	50,790	76,097	66,621	82,957

* As definite particulars are not given in respect of many articles imported direct during the particular year, the weights and measures are in such cases based upon the articles actually entered for "Home Consumption." † Does not include Coal imported for Government and Railway purposes.

Imports—Values.

Return of the Values of the principal Articles imported into Tasmania, 1879 and 1886-1890.

CLASS I.—ART AND MECHANIC PRODUCTIONS.	1880.	1886.	1887.	1888.	1889.	1890.
	£	£	£	£	£	£
Books, &c.						
Books, printed, and Stationery	27,431	39,486	43,694	37,405	42,232	41,954
Musical Instruments	8725	11,782	7992	8337	9492	11,979
Works of Art, Toys.						
Works of Art, Toys, Philosophical Instruments, &c....	...	12,788	13,394	11,870	10,776	12,631
Arms, Ammunition, &c.						
Gunpowder, Shot	...	3883	3292	4138	3680	3544

RETURN of the Values of the principal Articles imported into Tasmania—*continued.*

	1880.	1886.	1887.	1888.	1889.	1890.
	£	£	£	£	£	£
MACHINES, TOOLS, AND IMPLEMENTS.						
Cutlery	2352	2747	2381	2524	3106	3857
Ironmongery, Hardware, Holloware.	107,358	121,102	116,833	132,797	107,353	134,549
Machinery	4047	29,369	30,564	31,493	64,140	70,766
CARRIAGES, HARNESS, &c.						
*Saddlery, Leatherware, &c.	...	14,721	12,968	9625	13,855	17,973
SHIPS, BOATS, &c.	...	2123	957	973	2075	1130
BUILDING MATERIAL	...	3075	2266	2766	3612	3568
FURNITURE	8013	18,595	13,818	11,725	14,946	14,867
CHEMICALS.						
Manure ...	16,839	17,103	21,288	19,458	17,228	19,526
Matches, Lucifer and Vestas	2689	2403	3900	3038	2725	3105
Medicines and Drugs	23,967	28,413	30,270	24,844	24,387	23,464
Paints, Colors, and Chemicals	3844	9430	7701	8829	13,608	14,041
TOTALS CLASS I.	205,265	317,020	311,318	309,822	333,215	376,954
CLASS II.—TEXTILE FABRICS AND DRESS.						
WOOL AND WORSTED, SILK AND COTTON MANUFACTURES.						
Blankets	3428	2686	508	302	379	727
Carpets and Rugs	6256	8421	7913	6994	6103	6821
Fabrics—Cotton, Wool, Silk, &c.	347,280	451,512	387,618	392,423	378,601	387,651
*Woollens	155	...	...	...	...	...
DRAPERY, HABERDASHERY, DRESS.						
*Apparel and Slops	445	...	...	...	...	...

Boots and Shoes	347,481	52,280	31,483	39,343	41,249	47,413
*Drapery	9210	...	...	...	...	...
*Hats and Caps	75	...	...	...	...	...
MANUFACTURES OF FIBROUS MATERIALS.						
American Leather Cloth, &c.	158	...	...	...	...	376
Canvas	1361	746	432	1820	1384	1826
Corn Sacks	10,177	16,332	12,024	15,461	30,657	30,249
Bags—Gunny, &c.	4159	2254	1683	1003		
Rope and Twine	3784	7461	7014	8182	11,171	16,189
Woolpacks	4982	2520	3998	3764	4253	2470
TOTALS CLASS II.	426,218	544,212	452,673	469,292	473,797	493,722
CLASS III.—FOOD, DRINKS, &c.						
ANIMAL FOOD.						
Beef and Mutton	...	5992	8518	20,667	9843	3558
Butter, Cheese, and Lard	...	263	996	14,042	14,149	3022
Sundries	...	1655	1059	2710	4601	3902
VEGETABLE FOOD.						
Confectionery	6772	3520	3218	4216	3531	5188
Flour	291	2069	11,051	10,230	3258	10,776
Fruits—Green	3931	7557	9261	8919	7172	13,305
Dried	8704	7876	9253	9238	11,351	8566
Grain—Wheat	550	50,148	51,895	35,438	33,255	33,077
Rice	8414	6385	9912	7338	5994	9198
Sugar	137,739	74,368	103,135	97,791	117,457	128,197
Other Vegetable Food	...	7340	11,237	36,534	12,337	17,794
Total Food	166,401	167,443	219,535	247,123	222,938	236,583
DRINKS AND STIMULANTS.						
Chicory	976	239	506	460	231	430
Cocoa and Chocolate	3726	5099	3345	5486	4500	5409
Coffee	4383	2379	2898	3094	3327	3611
Salt and Saltpetre	2140	3323	2714	1783	3257	6103
Tea	41,222	35,077	40,649	49,339	46,875	45,399
Vinegar	2285	3915	3885	2030	2780	3182

RETURN of the Values of the principal Articles imported into Tasmania—*continued.*

FOOD, DRINKS, &c.—*continued.*	1880.	1886.	1887.	1888.	1889.	1890.
	£	£	£	£	£	£
Tobacco, Cigars, and Snuff	12,791	23,180	19,825	24,507	26,639	23,918
Various Stimulants	...	6942	6839	8497	7548	8173
Hops	560	25	318	169	659	330
Malt Liquors	9778	8942	13,316	12,638	14,112	16,691
Spirits and Cordials	24,456	29,249	31,453	31,652	9,494	33,259
Wines	10,647	9763	11,342	11,101	10,527	13,446
Total Drinks and Stimulants	112,964	128,133	137,090	150,756	149,949	159,951
TOTALS CLASS III.	279,365	295,576	356,625	397,879	372,887	396,534
CLASS IV.—ANIMAL AND VEGETABLE SUBSTANCES.						
ANIMAL SUBSTANCES.						
Candles	5066	10,426	9364	7024	3276	4240
Tallow	1421	264	450	1902	725	601
Hides and Skins	6057	7179	6344	7199	4269	4634
Leatherware and Saddlery	9931	*	*	*	828	699
Other Animal Substances	...	1932	1963	1896	4697	5816
VEGETABLE SUBSTANCES.						
Room and other Papers	15,305	19,266	17,392	21,082	18,612	20,105
Seeds and Plants	2444	4256	5246	6259	6765	4467
Timber	15,897	26,347	41,037	21,616	34,271	34,996
Other Vegetable Substances	...	5424	4776	5663	11,428	13,885
OILS (not including for export)	10,155	13,232	11,914	17,939	17,112	19,916
TOTALS CLASS IV.	66,276	88,326	98,486	90,580	101,983	109,359
CLASS V.—MINERALS AND METALS.						
Coal, Coke, &c.	20,382	37,349	31,837	33,237	38,851	32,723
Earthen and Glassware	16,272	16,715	16,467	14,226	21,521	21,553
Glass—Sheet, Crown, and Plate	2172	3049	3468	2914	2649	3062

Miscellaneous	...	9931	11,534	8444	10,089	10,019
Gold—Specie	177,700	85,000	102,500	2018	1000	115,000
Silver—Specie	8600	8600	5674	11,100	692	1075
Copper—Specie	...	20	20	20	110	...
Jewelry and Plate	15,367	9642	11,487	8528	8894	9286
Copper and Lead	2320	397	713	1338	1428	1575
Iron and Tin	14,345	23,873	28,449	21,935	33,322	42,329
Iron Fencing, &c.	...	4224	5507	6831	13,932	3669
Railway Material	9620	80,221	28,115	25,142	22,051	59,038
Totals Class V.	266,778	279,021	245,771	135,733	154,539	299,329
CLASS VI.—LIVE ANIMALS AND PLANTS.						
Live Stock—Cattle	17,980	6899	21,050	41,871	33,087	37,577
Horses	2650	3780	1380	2135	7010	15,690
Sheep	10,198	43,247	40,311	69,036	56,651	60,255
Pigs	...	35	40	10	10	1361
Other	...	...	...	...	148	82
Totals Class VI.	30,828	53,961	62,781	113,042	96,906	114,965
CLASS VII.—MISCELLANEOUS MATTERS.						
Oilmen's Stores	17,381	45,067	24,995	30,674	27,802	34,477
Ad valorem Goods	17,934	21,885	13,951	19,065	16,083	9645
Government Stores	11,485	97,379	18,329	32,887	33,446	58,262
Sundries	47,693	14,121	11,888	11,690	377	4265
Totals Class VII.	94,493	178,452	69,164	94,316	77,708	106,649
Grand Totals	1,369,223	1,756,567	1,596,817	1,610,664	1,611,035	1,897,512
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Rate per head of Mean Population	12 1 0	13 9 3	11 18 8	11 14 10	11 9 8	13 4 0

* Nothing introduced so defined.

EXPORTS—QUANTITIES.

RETURN of the Quantities of the principal Articles of Home Produce exported from Tasmania in the years 1880 and 1886–1890.

ARTICLES.	1880.	1886.	1887.	1888.	1889.	1890.
Saddlery and Leatherware { ..... tons	...	123	117	90	65	67
Saddlery and Leatherware { .....packages	989	3	2	5	1	1
Butter and Cheese .....cwts.	...	1190	209	2	...	389
Bran and Pollard { .....tons	461	1018½	253	40	...	51
Bran and Pollard { .....100 bushels	...	...	...	...	...	...
Flour ..... tons	100	8	51	5	1	...
Fruit — Pulp ..... packages	...	2524	2484	6031	684	985
Fruit — Preserved .....cwts.	30,633	18,945	17,345	14,649	7982	7379
Fruit — Green ..... 100 bushels	1555	2929	3192	3097	1915 pkgs. 3870	358 5432
Grain — Wheat ..... „	639	...	...	...	11	85
Grain — Oats ..... „	1816	2187	397	31	2690	1486
Grain — Barley ..... „	39	608	273	40	16	188
Oatmeal..... tons	313	287	132	54	62	45
Vegetables — Carrots, Turnips, Cabbages ..... „	43	529	477	131	914	503
Vegetables — Onions ..... „	115	15	8	...	51	42
Vegetables — Potatoes ..... „	6388	31,546	35,789	13,003	41,390	33,386
Vegetables — Pease and Beans ..... 100 bushels	67	153	134	63	168	203
Malt ..... bushels	4880	3380	404	2124	988	...
Hops ..... cwts.	3265	4751	4241	4348	4930	6518
Hides and Skins ..... packages	417	...	...	...	...	...
Ditto..... No.	...	129,351	186,457	403,579	543,186	329,994
Rabbit Skins ..... No. in thousands	1348	1185	2181	1962	1819	2991
Wool ..... 100 lbs.	90,252	81,758	97,402	69,770	62,409	89,843
Bark ..... tons	5132	12,030	9689	7814	10,575	11,007
Timber — Palings ..... No. in thousands	4394	2120	1530	1674	1417	913
Timber — Treenails, Spokes, &c..... „	382*	418	391	267	262	422
Timber — Posts and Rails, &c..... „	82	49	12	55	37	26
Timber — Piles, Beams, &c..... No.	3	75	...	...	4517 feet	...
Timber — Laths and Shingles ..... No. in thousands	6255	589	120	5	190	105
Timber — Sawn and Hewn ..... 1000 feet	7424	6296	7503	15,164	12,231	5652
Timber — Logs ..... „	...	...	63	250	212	86

	Shaped Pieces ..... No.	...	8842	3917	11,632	9497	57,406
	Blackwood ..... 1000 feet	1130	1186	320	1174	1574	1045
	Ditto, Logs ..... ft.	...	...	735,060 ft.	765,907 ft.	1,504,723	638,608
	Battens ..... 1000 feet	1	...	...	...	...	...
Oil	Sperm ..... tuns	334	188	115	63	131	183
	Black and various ..... ,,	...	1	80	3	5	11
Gold ..... ounces		50,999	27,757	37,252	33,560	33,234	23,107
Galena ..... tons		...	...	...	...	7	...
Silver Ore ..... tons		...	...	...	...	195	554
Tin	Ore ..... tons	3	...	1	2	31	4
	Smelted ..... ,,	3951	3776	3606	3775	3764	3210
Live Stock	Horses ..... No.	101	87	74	65	59	72
	Sheep ..... ,,	385	2207	4005	4140	4660	4604

* Including Staves.

EXPORTS—VALUES.

RETURN of the Values of the principal Articles exported from Tasmania in the years 1880 and 1886–90.

	1880.	1886.	1887.	1888.	1889.	1890.
CLASS I.—ART AND MECHANIC PRODUCTIONS.	£	£	£	£	£	£
BOOKS, MUSICAL INSTRUMENTS, &c.	...	1076	2951	1306	2415	835
MACHINES, TOOLS AND IMPLEMENTS	...	5210	6397	10,912	8320	6290
CARRIAGES, HARNESS, &c. (Saddlery and Leatherware)	...	9650	11,753	8985	6730	7686
BUILDING MATERIAL, FURNITURE, &c.	...	5484	1612	1854	751	1739
TOTAL CLASS I.	...	21,420	22,713	23,057	18,216	16,550
CLASS II.—TEXTILE FABRICS AND DRESS.	...	6213	5955	5245	2950	3981
CLASS III.—FOOD, DRINKS, &c.						
FOOD.						
Butter and Cheese	...	6166	859	8	...	1159
Bacon, Hams, Fish, Rabbits, &c.	...	1998	645	913	216	131
Fruit—Preserved and Green	132,674	148,596	129,901	120,494	128,822	136,502
Grain—Wheat	14,670	3	...	1	258	1145

RETURN of the Values of the principal Articles exported from Tasmania—*continued.*

ARTICLES.	1880.	1886.	1887.	1888.	1889.	1890.
Grain—Oats	18,674	22,152	4503	573	36,672	12,729
Barley	813	9453	5099	1288	415	1568
Meal—Flour	958	93	533	60	14	...
Oatmeal	5564	4663	2176	994	1256	760
Potatoes	15,126	95,452	85,487	35,256	167,739	101,047
Miscellaneous Food	4322	10,441	3936	1874	6558	4872
Total Food	192,801	299,017	233,139	161,461	341,950	259,913
DRINKS AND STIMULANTS.						
Hops	30,885	14,557	13,696	13,802	23,115	31,348
Miscellaneous Drinks and Stimulants	...	3693	3313	3011	1924	2897
Total Drinks and Stimulants	30,885	18,250	17,009	16,813	25,039	34,245
TOTAL CLASS III.	223,686	317,267	250,148	178,274	366,989	294,158
CLASS IV.—ANIMAL AND VEGETABLE SUBSTANCES.						
ANIMAL SUBSTANCES.						
Hides, Skins, &c.	25,289	14,859	26,965	34,071	33,671	43,743
Tallow	...	1240	1925	2697	2923	3197
Wool	542,244	310,934	415,425	306,930	283,237	419,173
Miscellaneous	...	391	762	349	2493	1243
VEGETABLE SUBSTANCES.						
Bark	28,214	79,606	60,898	61,829	87,248	87,137
Timber	51,973	37,353	37,411	71,198	63,161	38,302
Miscellaneous	...	16,557	4317	8999	38,758	23,628
Oils—Sperm	22,723	9463	5380	2570	5000	7880
Black, various	...	41	2016	121	152	249
TOTAL CLASS IV.	670,443	470,444	555,099	488,764	516,643	624,552

CLASS V.—MINERALS AND METALS.						
Stone, Clay, Earthenware, &c.	...	76	57	9206	8515	7766
Gold	201,655	104,402	140,584	127,562	123,486	87,085
„ Coin	...	...	...	...	...	40,520
Miscellaneous	...	957	1793	702	85	1224
Iron, Silver, Lead, Galena, &c.	...	995	2833	2306	5487	18,292
Tin, Ore and Metal	341,736	363,364	407,857	426,326	345,407	296,761
TOTAL CLASS V.	543,391	469,794	553,124	566,102	482,980	451,648
CLASS VI.—LIVE ANIMALS AND PLANTS.						
Cattle	...	...	140	50	...	10
Horses	8460	10,320	4705	7327	8826	14,185
Sheep	14,984	32,689	54,337	56,045	60,472	79,919
Miscellaneous	...	132	166	348	20	13
TOTAL CLASS VI.	23,444	43,141	59,348	63,770	69,318	94,127
CLASS VII.—MISCELLANEOUS MATTERS.						
Indefinite*	50,967	3261	2984	8653	2761	1976
PRODUCE OF COLONY	1,481,330	1,312,416	1,425,457	1,303,908	1,442,605	1,430,806
BRITISH AND FOREIGN PRODUCE	30,601	19,124	23,914	29,957	17,252	56,186
TOTAL EXPORTS	1,511,931	1,331,540	1,449,371	1,333,865	1,459,857	1,486,992
	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
RATE PER HEAD OF MEAN POPULATION	13 6 2	10 4 2	10 16 8	9 14 6	10 8 2	10 6 11

* Prior to the year 1882 a great number of articles, owing to lack of definite information, were classified under this head ; subsequent to that time such articles have been distributed under their proper classes.

IMPORTS AND EXPORTS.—Decennial Return.

YEAR.	TOTAL IMPORTS.	EXPORTS.			RATE PER HEAD OF MEAN POPULATION OF—	
		Produce of the Colony.	*British and Foreign Produce.*	TOTAL.	*Imports.*	*Exports.*
	£	£	£	£	£ s. d.	£ s. d.
1881.....	1,431,144	1,548,116	7460	1,555,576	12 5 9	13 7 2
1882.....	1,670,872	1,578,517	8872	1,587,389	13 19 8	13 5 8
1883.....	1,832,637	1,698,334	33,265	1,731,599	14 19 10	14 3 3
1884.....	1,656,118	1,448,714	27,143	1,475,857	13 4 2	11 15 5
1885.....	1,757,486	1,299,011	14,682	1,313,693	13 14 3	10 5 0
1886.....	1,756,567	1,312,416	19,124	1,331,540	13 9 3	10 4 2
1887.....	1,596,617	1,425,457	23,914	1,449,371	11 18 8	10 16 8
1888.....	1,610,664	1,303,908	29,957	1,333,865	11 14 10	9 14 6
1889.....	1,611,035	1,442,605	17,252	1,459,857	11 9 8	10 8 2
1890.....	1,897,512	1,430,806	56,186	1,486,992	13 4 0	10 6 11

RETURN showing the Value of Goods to and from Tasmania transhipped in Victoria during the Ten Years ending 1890.

YEAR.	VALUE OF GOODS			
	Transhipped to the Colony.		Received from the Colony.	
	Value—£.	Packages.	Value—£.	Packages.
1881	336,324*	—	130,259	—
1882	187,559	12,079	161,292	1503
1883	151,278	18,248	183,817	1693
1884	133,138	11,136	126,186	2211
1885	137,520	12,857	107,829	14,343
1886	138,996	22,916	258,205	120,630
1887	218,902	9698	200,108	89,263
1888	260,040	—	222,836	—
1889	221,188	—	364,586	—
1890	217,267	—	331,227	—

*Exclusive of numerous undescribed packages the values of which were not ascertained.

The two following Abstracts relating to Exports and Imports give the comparative extent and general character of external trade during the years 1879, 1888, and 1889.

ABSTRACT of the Nature and Extent of External Trade.

IMPORTS.

CLASS.	1889.	1890.	1880.	1890, Increase or Decrease compared with 1889. Increase.	1889. Decrease.	1880. Increase.	1880. Decrease.
			NUMERICAL.				
	£	£	£	£	£	£	£
I. Art and Mechanic Productions	333,215	376,954	205,265	43,739	...	171,689	...
II. Textile Fabrics and Dress	473,797	493,722	426,218	19,925	...	67,504	...
III. Foods, Drinks, and Stimulants	372,887	396,534	279,365	23,647	...	117,169	...
IV. Animal & Vegetable Substances	101,983	109,359	66,276	7376	...	43,083	...
V. Minerals and Metals	154,539	299,329	266,828	144,790	...	32,501	...
VI. Live Animals and Plants	96,906	114,965	30,828	18,059	...	84,137	...
VII. Miscellaneous Matters	77,708	106,649	94,493	28,941	...	12,156	...
				286,477	...	528,239	...
Total	1,611,035	1,897,512	1,369,273				
			CENTESIMAL.				
I. Art and Mechanic Productions	20·68	19·87	14·99	13·12	...	83·64	...
II. Textile Fabrics and Dress	29·41	26·02	31·13	4·25	...	15·86	...
III. Foods, Drinks, and Stimulants	23·15	20·90	20·40	6·34	...	41·94	...
IV. Animal & Vegetable Substances	6·33	5·76	4·84	7·23	...	65·01	...
V. Minerals and Metals	9·59	15·77	19·49	93·69	...	12·18	...
VI. Live Animals and Plants	6·02	6·06	2·25	18·63	...	272·59	...
VII. Miscellaneous	4·82	5·62	6·90	37·37	...	12·86	...
Total	100·00	100·00	100·00	17·78	...	38·58	...
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Total Imports per Head	11 9 8	13 4 0	12 1 0	1 19 10	...	3 13 5	...
Ditto per square mile £	61·45	72·38	52·23	10·93	...	20·15	...

EXPORTS.

CLASS.	1889.	1890.	1880.	1890, Increase or Decrease compared with 1889. Increase.	1889. Decrease.	1880. Increase.	1880. Decrease.
			NUMERICAL.				
	£	£	£	£	£	£	£
I. Art and Mechanic Productions	18,216	16,550	*	...	1666	16,550	...
II. Textile Fabrics and Dress	2950	3981	*	1031	...	3981	...
III. Food, Drinks, and Stimulants	366,989	294,158	223,686	...	72,831	70,472	...
IV. Animal and Vegetable Substances	516,643	624,552	670,443	107,909	...	...	45,891
V. Minerals and Metals	482,980	451,648	543,391	...	31,332	...	91·743
VI. Live Animals and Plants	69,318	94,127	23,444	24,809	...	70,683	...
VII. Miscellaneous Matters	2761	1976	50,967	...	785	...	48,991
Total	1,459,857	1,486,992	1,511,931	133,749	106,614	161,686	186,625
				27,135	...	...	24,839
			CENTESIMAL.				
I. Art and Mechanic Productions	1·25	1·14	*	...	91·46	...	...
II. Textile Fabrics and Dress	0·20	0·27	*	34·95	...	...	...
III. Food, Drinks, and Stimulants	25·14	19·78	14·80	...	19·84	31·50	...
IV. Animal and Vegetable Substances	35·39	42·00	44·34	20·89	...	...	6·84
V. Minerals and Metals	33·08	30·38	35·94	...	6·48	...	16·88
VI. Live Animals and Plants	4·75	6·33	1·55	35·79	...	301·49	...
VII. Miscellaneous Matters	0·19	0·13	3·37	...	28·43	...	96·12
Total	100·00	100·00	100·00	1·86	...	...	1·65
	£ s. d.	£ s. d.	£ s. d.	£ s. d.			£ s. d.
Total Exports per head	10 8 2	10 6 11	13 6 2	0 3 9	...	...	0 3 6
Ditto per square mile £	55·69	56·72	57·67	1·04	...	...	·95

* Owing to a change in classification, figures for 1880 cannot be accurately ascertained and distributed under these heads.

Direction of Trade.

It is difficult to arrive at the true value of Tasmanian trade with respect to any particular country, the custom being to refer all imports and exports, whether transhipments or re-exports, to the immediate port of entry or clearance. Owing to the increasing facilities offered by steam communication *viâ* Victoria and New South Wales, the direct trade to or from Tasmania is falling off (especially as regards exports) in favour of an *indirect* trade through the ports of the two leading colonies, which are our most convenient points of junction with the great oceanic lines of European steamers.

Direction of Import Trade.

The immediate direction of the import trade of Tasmania, showing the changes from direct to indirect communication, is shown in the following summary of proportions, in the order of the greater proportion during the last year.

PROPORTION of Direct Import Trade with various Countries.

	Average of Decade 1873-1882.	Year 1883.	Year 1888.	Year 1889.	Year. 1890.
1. Victoria	54·37	49·18	51·79	48·04	43·70
2. United Kingdom	30·05	34·45	30·14	32·13	35·88
3. New South Wales	6·42	7·25	10·33	11·97	13·22
4. Other British Colonies	8·64	8·27	6·43	5·64	5·31
5. Foreign Countries	0·52	·85	1·31	2·22	1.89
	100·00	100·00	100·00	100·00	100·00

Although Victoria stands highest in the list, it is so in virtue of the inclusion of transhipments and re-exports from the United Kingdom and other countries; and it is roughly estimated that the latter amounts to about 76 per cent. of the total trade referred to Victoria.

During the year 1890 the element of transhipments included alone amounted to £217,267, and this element represented the following sums in the previous eight years, viz., 1881, £336,324; 1882, £187,559; 1883, £151,278; 1884, £133,138; 1885, £137,520; 1886, £138,996; 1887, £218,902; 1888, £260,040; 1889, £221,188.

Proportion of Direct Export Trade with various Countries.

The following summary shows the proportion of direct trade with each of the principal countries, and the variations occurring since 1873. The order begins with the highest, and in the sequence exhibited during the last year. 1890, thus—

PROPORTION of Direct Export Trade with various Countries.

	Average of Decade 1873-1882.	Year 1883.	Year 1888.	Year 1889.	Year. 1890.
1. Victoria	27·38	34·37	44·71	49·14	42·59
2. New South Wales	21·15	36·08	34·48	29·57	29·14
3. United Kingdom	41·98	21·03	16·59	17·25	21·74
4. Other British Colonies	9·40	7·62	4·22	4·04	6·49
5. Foreign Countries	4·90	—	—	—	0·04
	100·00	100·00	100·00	100·00	100·00

It will be observed that within the period covered by these comparisons the direct trade with the United Kingdom, formerly taking the highest position, now occupies the third position, with only about a sixth of the trade. Victoria and New South Wales together take 71·73 per cent. of the whole export trade *direct*, but as this largely consists of Gold, Tin, Bark, and Wool, it is apparent that the major portion of our export trade is ultimately destined for the United Kingdom. This, with similar trade in Queensland, considerably swells the imports and exports of the two colonies named above that which more properly belongs to their actual trade, and slightly exaggerates the importance of the Australasian trade as a whole.

Extent of the External Trade of Tasmania with various Countries.

The following table gives proportionally a synopsis of the extent and general direction in which the trade of Tasmania has been moving during the years 1880, 1889, and 1890. The selection is made of the first and two last years of the decade, for the purpose of more satisfactorily marking the the progress over a large period :—

Imports.			Country.	Exports.		
1889.	**1890.**	**1880.**		**1889.**	**1890.**	**1880.**
£	£	£	*Numerical.*	£	£	£
517,681	680,760	288,495	United Kingdom (direct)	251,835	323,239	701,967
773,917	829,167	863,020	Victoria	717,290	633,362	400,999
192,759	250,832	121,802	New South Wales ..	431,741	433,225	293,161
90,857	74,237	18,976	Other British Colonies	58,975	96,606	114,399
35,821	62,516	76,930	Foreign Countries .	16	560	1405
1,611,035	1,897,512	1,369,223	TOTAL	1,459,857	1,486,992	1,511,931
			Centesimal.			
32·13	35·88	21·07	United Kingdom (direct)	17·25	21·74	46·43
48·04	43·70	63·03	Victoria	49·14	42·59	26·52
11·97	13·22	8·89	New South Wales..	29·57	29·14	19·39
5·64	5·31	1·39	Other British Colonies	4·04	6·49	7·57
2·22	1.89	5·62	Foreign Countries..	—	0·04	0·09
100·00	100·00	100·00	TOTAL	100·00	100·00	100·00

Nature of Trade with particular Countries.

Fuller information with respect to the character of the trade with each country is given in the following table :—

NATURE and Extent of Tasmanian Trade with various Countries during the Years 1888, 1889, and 1890.

	IMPORTS.			EXPORTS.		
	1888.	1889.	1890.	1888.	1889.	1890.
	£	£	£	£	£	£
United Kingdom direct.						
1. Art and Mechanic Productions	112,500	131,298	155,334	2301	342	1114
2. Textile Fabrics and Dress...	210,637	227,156	292,289	201	45	10
3. Food, Drinks, and Stimulants	45,309	41,390	49,841	...	7341	...
4. Animal and Vegetable Substances	24,338	24,609	26,407	217,652	242,821	320,476
5. Minerals and Metals	52,728	56,894	95,358	1193	793	1346
6. Live Animals and Plants	...	5	206	...	...	...
7. Miscellaneous	39,879	36,329	61,325	...	493	293
Total United Kingdom...	485,391	517,681	680,760	221,347	251,835	323,239
Per cent. to Total	(30·14)	(32·13)	(35·88)	(27·29)	(17·25)	(21·74)
Victoria.						
1. Art and Mechanic Productions	153,170	162,855	167,940	14,278	12,447	7690
2. Textile Fabrics and Dress ...	247,649	227,281	171,277	2584	1762	2867
3. Food, Drinks, and Stimulants	229,516	192,607	189,244	55,632	126,662	83,401
4. Animal and Vegetable Substances	36,753	35,041	41,313	207,205	176,398	214,520
5. Minerals and Metals	43,872	48,873	161,412	282,546	373,244	292,578
6. Live Animals and Plants	76,650	76,019	64,615	27,041	25,058	31,134
7. Miscellaneous	46,600	31,241	33,366	7035	1719	1172
Total Victoria	834,200	773,917	829,167	596,321	717,290	633,362
Per cent. to Total	(51·79)	(48·04)	(43·70)	(44·71)	(49·14)	(42·59)
New South Wales.						
1. Art and Mechanic Productions	27,933	24,248	35,015	5454	5050	7028
2. Textile Fabrics and Dress ...	9,725	16,993	27,031	2376	1133	1068
3. Food, Drinks, and Stimulants	43,272	66,970	81,611	102,365	217,029	192,431
4. Animal and Vegetable Substances	6931	10,153	10,077	31,667	57,443	53,253
5. Minerals and Metals	38,036	47,961	40,868	280,972	107,695	116,224
6. Live Animals and Plants	34,691	19,855	49,502	35,709	42,890	62,883
7. Miscellaneous	5822	6579	6728	1300	501	338
Total New South Wales.	166,410	192,759	250,832	459,853	431,741	433,225
Per cent. to Total	(10·33)	(11·97)	(13·22)	(34·48)	(29·57)	(29·14)
New Zealand.						
1. Art and Mechanic Productions	1350	3799	2481	639	377	407
2. Textile Fabrics and Dress ...	1126	1330	699	34	10	36
3. Food, Drinks, and Stimulants	43,814	49,268	34,884	14,122	9320	7272
4. Animal and Vegetable Substances	11,192	4743	10,205	17,861	21,930	22,689
5. Minerals and Metals	168	183	383	666	1248	41,500

NATURE and Extent of Tasmanian Trade with various Countries—*continued.*

	IMPORTS.			EXPORTS.		
	1888.	**1889.**	**1890.**	**1888.**	**1889.**	**1890.**
	£	£	£	£	£	£
6. Live Animals and Plants	1711	597	642	1020	370	110
7. Miscellaneous	1309	3242	4021	318	45	173
Total New Zealand.....	60,670	63,162	53,315	34,660	33,300	72,187
Per cent. to Total.....	(3·77)	(3·92)	(2·81)	(2·60)	(2·28)	(4·85)
Queensland.						
1. Art and Mechanic Productions	2966	840	...	370	...	...
2. Textile Fabrics and Dress ...	1	...	887	...	...	...
3. Food, Drinks, and Stimulants	132	...	2409	5746	4306	2983
4. Animal and Vegetable Substances	...	...	...	1742	1203	1605
5. Minerals and Metals	30	...	...	...	...	...
6. Live Animals and Plants	...	...	...	...	1000	...
7. Miscellaneous	11	...	...	...	...	...
Total Queensland	3140	840	3396	7858	6509	4588
Per cent. to Total.....	(0·19)	(0·05)	(0·17)	(0·59)	(0·45)	(0·31)
South Australia.						
1. Art and Mechanic Productions	1048	1140	2293	15	...	261
2. Textile Fabrics and Dress....	153	970	905	50	...	...
3. Food, Drinks, and Stimulants	15,782	3494	14,158	369	2315	8071
4. Animal and Vegetable Substances.....	10	26	270	12,627	16,848	11,499
5. Minerals and Metals.....	...	279	...	...	...	...
6. Live Animals and Plants.....	...	430	...	...	...	...
7. Miscellaneous	271	61	...	...	3	...
Total South Australia.....	17,264	6400	17,626	13,061	19,166	19,831
Per cent. to Total.....	(1·07)	(0·40)	(0·93)	(0·98)	(1·31)	(1·33)
Western Australia.						
3. Food, Drinks, and Stimulants	...	...	...	40	...	..
5. Minerals and Metals.....	...	...	...	725	...	...
Total Western Australia.	...	...	...	765	...	...
Per cent. to Total.....	...	...	...	(0·05)	...	...
Mauritius.						
2. Textile Fabrics, Dress, &c....	...	...	...	...	...	...
3. Food, Drinks, and Stimulants	17,615	18,775	22,621	...	...	...
Total Mauritius.....	17,615	18,775	22,621	...	...	...
Per cent. to Total.....	(1·09)	(1·17)	(1·19)	...	...	...
Other British Colonies.						
1. Mechanic Productions	4796	1680	3557	...	...	50
3. Food, Drinks, and Stimulants	...	...	...	...	16	...
4. Animal and Vegetable Substances.....	...	...	...	...	...	510
Per cent. to Total.....	(0·30)	(0·10)	(0·19)	...	...	(0·04)

NATURE and Extent of Tasmanian Trade with various Countries—*continued.*

	IMPORTS.			EXPORTS.		
	1888.	1889.	1890.	1888.	1889.	1890.
America.	£	£	£	£	£	£
1. Art & Mechanic Productions	6049	7195	10,051	...	...	...
2. Textile Fabrics and Dress....	1	1	...	...	...	...
3. Food, Drinks, and Stimulants	2439	...	601	...	...	...
4. Animal and Vegetable Substances	7173	9917	4343	...	...	...
5. Minerals and Metals.....	499	349	908	...	...	...
7. Miscellaneous	424	...	626	...	...	...
Total America.....	16,585	17,462	16,529	...	...	...
Per cent. to Total.....	(1·03)	(1·08)	(0·87)	...	...	...
Germany—Total Imports.....	...	59	440	...	...	...
China—Total Imports.....	...	750	2564	...	...	...
Per cent. to Total	...	(0·05)	(0·14)	...	...	...
Sweden.						
1. Art & Mechanic Productions	10	160	...	...	...	...
4. Animal and Vegetable Substances.....	4183	17,390	15,962	...	...	...
5. Minerals and Metals.....	400	...	400	...	...	...
Total Sweden.....	4593	17,550	16,362	...	...	...
Per cent. to Total.....	(0·28)	(1·09)	(0·86)	...	...	...
All Countries. Values.						
1. Art and Mechanic Productions	309,822	333,215	376,954	23,057	18,216	16,550
2. Textile Fabrics and Dress....	469,292	473,797	493,722	5245	2950	3981
3. Food, Drinks, and Stimulants	397,879	372,887	396,534	178,274	366,989	294,158
4. Animal and Vegetable Substances.....	90,580	101,983	109,359	488,764	516,643	624,552
5. Minerals and Metals.....	135,733	154,539	299,329	566,102	482,980	451,648
6. Live Animals and Plants.....	113,042	96,906	114,965	63,770	69,318	94,127
7. Miscellaneous	94,316	77,708	106,649	8653	2761	1976
Total for all Countries...	1,610,664	1,611,035	1,897,512	1,333,865	1,459,857	1,486,992
Percentages.						
1. Art and Mechanic Productions	19·24	20·68	19·87	1·73	1·25	1·11
2. Textile Fabrics and Dress...	29·14	29·41	26·02	0·39	0·20	0·27
3. Food, Drinks, and Stimulants	24·70	23·15	20·90	13·37	25·14	19·78
4. Animal and Vegetable Substances....	5·62	6·33	5·76	36·64	35·39	42·00
5. Minerals and Metals.....	8·43	9·59	15·77	42·44	33·08	30·38
6. Live Animals and Plants.....	7·02	6·02	6·06	4·78	4·75	6·33
7. Miscellaneous.....	5·85	4·82	5·62	0·65	0·19	0·13
Total for all Countries...	100·00	100·00	100·00	100·00	100·00	100·00
Total Value of Domestic Products	...	...	...	1,303,908	1,442,605	1,430,806
Total Trade per head..... £ *s. d.*	11 14 10	11 9 8	13 4 0	9 4 10	9 16 2	10 6 11
Ditto per square mile.... p. c.	61·4	61·4	72·3	50·9	55·7	56·7

Nature and Importance of various branches of Tasmanian Trade.

The relative extent of particular branches of import and export trade during 1890 is shown in the order of their importance, in the following classified abstract :—

Imports, 1890.	Per cent.	Exports, 1890.	Per cent.
1. Textile Fabrics and Dress .	26·02	1. Animal and Vegetable Substances, (including Wool, Timber, and Bark)	42·00
2. Foods, Drinks, and Stimulants	20·90	2. Minerals and Metals	30·38
3. Art & Mechanic Productions.....	19·87	3. Foods, Drinks, & Stimulants	19·78
4. Minerals and Metals.....	15·77	4. Live Animals and Plants ...	6·33
5. Live Animals and Plants ..	6·06	5. Art and Mechanic Productions	1·11
6. Animal and Vegetable Substances	5·76	6. Textile Fabrics and Dress ...	0·27
7. Miscellaneous	5·62	7. Miscellaneous	0·13
	100·00		100·00

This comparison readily expresses the chief characteristics of our exchange trade,—Textile Fabrics and Dress taking the first position as regards imports, and Animal and Vegetable Substances the corresponding position in respect of exports. It will be observed, as regards our own exports, that fully 98 per cent. represent raw or natural products; and that art, mechanics, and manufactured products do not exceed 2 per cent. of the whole.

The order of importance of the thirteen principal articles of export for the year 1890 is as follows :—

1890.	£	Per cent. to total.
1. Wool.....	419,173	28·19
2. Tin*	296,961*	19·97*
3. Fruit.....	136,502	9·18
4. Potatoes	101,047	6·80
5. Bark.....	87,137	5·86
6. Gold*	87,085*	5·86*
7. Stud Sheep	79,919	5·37
8. Hides and Skins	43,743	2·94
9. Timber	38,302	2·58
10. Hops.....	31,348	2·11
11. Silver†	16,872†	1·13†
12. Horses	14,185	0·95
13. Oats	12,729	0·86
14. All other products falling under £10,000.....	121,989	8·20
Total.....	1,486,992	100·00

* The exports of tin and gold for this year, owing to exceptional circumstances, are much below the average yearly amount, the mean of which, for the last quinquenniad, was, respectively, £367,983 tin, and £116,624 gold.

† The important silver fields discovered recently at Mount Zeehan, Mount Dundas, and Heazlewood are only now beginning to be developed, and the prospects are such that it is confidently expected silver will head the list of our exports within the next two or three years.

External and local means of transport have greatly improved within the last ten years as shown hereafter by the large increase in shipping, the

substitution of steam for sailing vessels, and the rapid development of local railway systems.

The following is a summary of the external Shipping trade, since the year 1881, entered and cleared :—

Year.	Vessels, Number.			Tonnage.		
	Steam.	Sailing.	Total.	Steam.	Sailing.	Total.
1881	574	809	1383	265,833	117,929	383,762
1882	574	877	1451	281,907	135,511	417,418
1883	592	713	1305	345,432	125,690	471,122
1884	616	724	1340	498,946	115,252	614,198
1885	738	618	1356	564,131	113,675	677,806
1886	821	584	1405	596,372	96,057	692,429
1887	788	603	1391	637,295	98,004	755,299
1888	838	727	1565	668,536	107,742	776,278
1889	968	693	1661	794,857	117,389	912,246
1890	1007	502	1509	852,219	99,028	951,247
Increase since 1881	433	...	126	586,376	...	567,485
Ditto per cent	75·44	...	9·11	220·5	...	147·85
Decrease since 1881	...	307	...	...	18·901	...
Ditto per cent	...	37·95	...	...	16·03	...

Comparison of Trades at different Periods.

It is difficult by the aid of figures alone to trace the exact effects of various influences which combine to form the aggregate trade of any one year. A diagram showing the progress of the Colony since the year 1816 (*see* Chapter xvi.) exhibits these effects more successfully. The indices of this progress have been confined to Export Trade, Population, General Revenue, and the Marriage-rate. No other figures that might be selected could better exhibit or more sensitively indicate the changes affecting the prosperity of each succeeding year.

Glancing over the curves of Export Trade, coloured red, the eye is at once arrested by three bold prominences indicating the height to which the nominal value of export trade had attained at successive periods in Tasmania. The first peak, in 1838, marks a partial exodus of the stock and population of Tasmania to form the first settlement in the now vigorous Colony of Victoria. The second peak, culminating in the years 1853-4, marks a sudden brief expansion of trade, but chiefly a second considerable exodus of stock and population drawn to Victoria in consequence of the discovery of gold in that Colony. The third prominence, still ascending, began in the year 1870, and marks the period of the discovery and development of the gold and tin mines of Tasmania. It will be noted that the nominal values of export trade and the marriage-rate alone are favourably affected, as shown by the two first prominences. Population declined, or its increase was seriously arrested, solely owing to the exodus referred to.

The distinction marking the third expansion of trade, commencing in 1870, as compared with the two previous years, is that it is solely due to internal progress or attraction, or prosperity within the Colony itself, and not, as in two other cases, to external progress, or attraction and prosperity beyond the Colony of Tasmania.

Trade.—Comparison with Different Countries.

The Amount of Trade per Head of Population a misleading Index of Progress.

While for the purpose of measuring the progress of external trade, it is necessary to employ some common standard,—such as "per head of population," or "per square mile,"—it cannot be too strongly urged that inferences as regards the internal progress of a country—based upon the extent of our external trade, as indicated by the ratios "per head"—are often widely erroneous. The extent of an external trade depends, primarily, as much upon the number of our own wants as upon the extent of our powers locally to provide for them. Thus it is conceivable that the most savage and the most civilised countries might equally have a very small external trade as indicated by "per head" of population or otherwise. In the savage state this result would be chiefly due to the lack of knowledge and paucity of wants. In the other, the like result would be chiefly due to the perfection of powers within its own borders to supply nearly all local wants.

If this be conceded, we are also better enabled to understand how it is that, in the earlier stages of a colony's history, the "rate per head" of external trade is invariably higher than in its later and more developed stage, even although upon the whole there was a steady progress in the absolute values of Imports and Exports. In truth, under such circumstances, the test of the progress of external trade by "rate per head," unless taken into consideration with the "extent of territory per head," is utterly fallacious. As a general rule, the larger the extent of territory per head,—*i.e.*, the less dense the population,—the greater will the rate "per head" be as regards the value of Exports when reckoned per square mile of territory. It will be seen that those countries which are most densely populated have also the greatest relative value of Exports, when reckoned per square mile of territory; and this mode of comparison, taken by itself, is not so apt to mislead as when measured by the factor "per head."

In young countries differing in size and development, and whose industries and external trade are mainly connected with raw or natural products, comparisons between them can only be made satisfactorily on the basis of area. Comparisons on the basis of population are misleading where arts and manufacturers do not form the principal part of a country's industry. This is at once apparent by comparing the trade of densely populated countries, whose trade is largely composed of manufactured products, with thinly populated countries, whose trade is mainly composed of raw or natural products.

Comparison with

CLASS I.—Countries densely populated, whose Trade is mainly composed of Arts and Manufactures.

		AREA—	POPULATION.		EXPORT OF DOMESTIC PRODUCTS.		
		Square miles.	Persons.	Per sq. mile.	Amount.	Per sq. mile.	Per head.
		No.	No.	No.	£	£	£
United Kingdom	1889	121,481	37,808,892	311·23	248,091,959	2042·23	6·56
Germany	1885	211,168	46,855,704	221·89	143,015,000	677·31	3·05
France	1886	204,177	38,218,900	187·18	129,952,000	604·98	3·40
Belgium	1888	11,373	6,030,043	530·21	49,748,000	4374·22	8·25

Comparison with

CLASS II.—Countries thinly populated, whose Trade is mainly composed of Raw or Unmanufactured Products.

		AREA—	POPULATION.		EXPORT OF DOMESTIC PRODUCTS.		
		Square miles.	Persons.	Per sq. mile.	Amount.	Per sq. mile.	Per head.
		No.	No.	No.	£	£	£
United States of America	1889	3,602,990	66,000,000	18·32	152,192,210	42·24	2·31
Dominion of Canada	1888	3,406,542	4,946,497	1·45	16,077,412	4·72	3·25
Colonies of Australasia	1890	3,161,457	3,824,816	1·20	51,866,080	16·41	17·61
(1) Victoria	1890	87,884	1,133,266	12·60	10,291,821	117·11	9·20
(2) New Zealand	1890	104,471	630,781	5·99	9,428,761	90·24	10·00
(3) Tasmania	1890	26,215	145,290	5·54	1,430,806	54·58	9·95
(4) New South Wales	1890	310,700	1,121,857	3·61	17,232,725	55·46	15·64
(5) Queensland	1890	668,497	422,776	·63	8,412,244	12·58	20·28
(6) South Australia	1890	903,690	324,556	·36	4,410,062	4·88	13·77
(7) West Australia	1890	1,060,000	46,290	·04	659,661	·62	14·62

The preceding comparisons clearly demonstrate the fallacy of determining the relative progress of the trade of different countries by means of the "per-head" factor, which unfortunately is now too frequently applied as a comparative test, with results more or less contradictory or misleading.

The extent of domestic products exported *per square mile of territory* is shown to be the only common standard for comparison which approaches any degree of accuracy, and in this respect it will be found that Tasmania takes up a most satisfactory position in Class II., *i.e.*, among countries thinly populated, whose trade is mainly composed of raw or unmanufactured products.

By the contrast of countries highly advanced in arts and manufactures (Class I.), with those still mainly in the agricultural and pastoral stage (Class II.), it is clearly established, as a general rule, that the largeness of the factor of trade *per head* is more indicative of the relative meagreness of population than of the relative richness of trade. On the other hand, it almost invariably follows that the country which has the richest trade *per square mile of territory* has also the greatest density of population. These conclusions are most forcibly illustrated by contrasting the trade of the United Kingdom or Belgium (Class I.) with either South Australia or Western Australia (Class II.)

The high value of Raw Exports per head, such as wool and pastoral products, exported from the Australasian Colonies, indicate the high proportion which the *gratuitous gift of nature* contributes, rather than the energy or value contributed by *man's services* as exhibited in manufactured products.

This is significantly indicated in the domestic products exported from New South Wales: for out of the total of £12,884,000 exported in 1886, about £8,952,000, or 69·5 per cent. of the total value, only involved the *actual services* of about 1·63 *per cent of its population*. This is evidence proving the direction of its industry; its poverty of population relative to area; and its extensive lands open to sheep-breeding, rather than the superior energy of its people, or the results of its fiscal policy.

These conclusions are also fully borne out by the progress of external trade in the Australasian group during the last fifteen years; and the following abstract demonstrates that the rate *per head* diminishes as density of population and absolute amount of trade increases; although the temporary fluctuations in 1883 and 1887 somewhat obscure this tendency.

ABSTRACT of External Trade in the Australasian Group from 1873 to 1889.

Year.	Amount in Thousands.		Per Head of Population.		Population per square mile.
	Imports.	Exports.	Imports.	Exports.	
	£	£	£	£	No.
1873	41,447	39,130	19·77	18·66	0·66
1878	50,882	44,365	19·55	17·04	0·82
1883	62,134	56,096	20·10	18·14	0·98
1887	57,255	50,553	16·12	14·24	1·12
1888	62,258	57,605	18·08	15·95	1·16
1889	68,849	62,586	18·45	16·75	1·20
1890	67,691	64,674	17·98	17·15	1·21

Similar conclusions are also indicated by a study of the analysis of the external trade of British Possessions throughout the world, as shown in the following summary for 1888, from which it may be seen that the greatness of

external trade may always be fairly gauged by the density of population, but not from the greatness or smallness of the amount of trade *per head* of population. Undoubtedly, the amount of Australasian trade is relatively far greater than other countries in a similar stage of development: but the rate *per head per se* is a fallacious index of progress, for as sure as population and local production in other than raw products make headway, so surely will the rate *per head* of external trade diminish, although the aggregate amount of trade may be rapidly on the increase.

ABSTRACT showing the Extent of External Trade in various Groups of British Possessions in relation to Area and Population, Year 1890.

Imports.			Group of Possessions situated in	Exports.		
Amount. 000's omitted.	Per cent. to total.	Per square mile.		Amount. 000's omitted.	Per cent. to total.	Per square mile.
£	£	£		£	£	
444,979	64·82	3711	Europe	351,879	58·91	2935
120,683	17·58	120	Asia	133,780	22·40	133
19,054	2·78	69	Africa	16,192	2·71	59
33,823	4·92	9	America	30,336	5·07	8
276	·04	19	South Seas	481	·08	33
67,691	9·86	21	Australasia	64,674	10·83	21
686,506	100·00	84	Total British Possessions	597,342	100·00	73

Shipping Tonnage and External Trade of British Possessions, Year 1890.

A fuller statement of the extent of trade and shipping of the various British Possessions is given in the following table, from which it will be seen that, next to the United Kingdom and India, Australasia takes up the most important position as regards the amount of external trade. In extent of area, Australasia—with the exception of the Dominion of Canada—is by far the greatest, representing more than a third (38·93 per cent.) of the area of all British Possessions.

External Trade of British Possessions, Years 1889–1890.

000's omitted.

Area in thousand sq. miles.	Imports. From United Kingdom direct.	Imports. From all Countries.	Country.	Exports. To United Kingdom direct.	Exports. To all Countries.	Shipping. Total Tonnage entered and cleared.
	£	£		£	£	
			Europe.			
			United Kingdom with other British Possessions			
...	...	96,161		...	94,522	...
...	...	324,531	With Foreign Countries.	...	233,730	...
121·00	...	420,692	Total	...	328,252	55,988
·00	...	...	Channel Islands	...	...	...
·00	...	...	Gibraltar	...	...	11,489
·12	...	24,287	Malta and Gozo	...	23,627	9,162
121·12	...	494,979	Total Europe	...	351,879	76,639
			Asia.			
·07	...	2,522	Aden	...	2,097	...
25·36	1,388	4,732	Ceylon	2,490	3,835	5,118
·03	...	...	Cyprus	...	...	...
·03	...	2,171	Hong Kong	...	1,129	9,772
944·49	65,115	86,657	India	39,592	105,367	7,316
·03	...	51	Labuan	...	31	57
27·50	...	...	North Borneo	...	...	...
1·47	3,925	24,550	Straits Settlements	4,131	21,321	8,642
998·98	...	120,683	Total Asia	...	133,780	30,902
			Africa.			
·03	...	...	Ascension	...	...	...
221·31	8,535	10,106	Cape Colony	9,712	10,286	2,957
·07	75	150	Gambia	26	164	222
3·00	295	390	Sierra Leone	147	349	680
29·40	423	562	Gold Coast	494	601	643
1·07	337	501	Lagos	210	595	556
0·71	709	2,822	Mauritius	316	2,762	679
18·75	3,508	4,491	Natal	1,203	1,433	1036
0·40	20	32	St. Helena	2	2	79
274·74	13,902	19,054	Total Africa	12,110	16,192	6,852
			America.			
·17	509	1,194	Barbadoes	131	1,204	1,246
·02	...	308	Bermudas	2	138	308
6·40	...	282	Honduras	171	288	364
109·00	1,129	1,887	British Guiana	959	2,162	687
4·47	...	223	Bahamas	14	168	271
·17	...	42	Turk's Islands	1	43	215
4·19	1,232	2,189	Jamaica	615	1,903	1,231
·62	...	499	Windward Islands*	330	588	1,725
·66	...	452	Leeward Islands	42	512	1,567
1·75	822	2,249	Trinidad	857	2,179	...
3470·00	8,916	23,171	Canada	9,936	19,880	10,328
42·00	453	1,327	Newfoundland	315	1,271	634
3639·45	...	33,823	Total America	13,373	30,336	18,576

* Exclusive of Barbadoes.

EXTERNAL Trade of British Possessions—*continued.*

000's omitted.

AREA in thousand sq. miles.	IMPORTS. From United Kingdom direct.	IMPORTS. From all Countries.	COUNTRY.	EXPORTS. To United Kingdom direct.	EXPORTS. To all Countries.	SHIPPING. Total Tonnage entered and cleared.
	£	£	*South Seas.*	£	£	
7·74	...	209	Fiji	...	365	117
6·50	62	67	Falkland Islands	115	116	62
14·24	...	276	Total South Seas ...	...	481	179
			Australasia.			
87·88	9,607	22,954	Victoria	6,850	13,266	4,363
311·00	8,628	22,615	New South Wales.....	6,623	22,055	4,762
668·49	2,120	4,827	Queensland.....	2,366	8,555	911
903·69	2,484	8,263	South Australia.....	4,297	8,827	2,190
1060·00	415	874	Western Australia	335	672	905
26·22	681	1,898	Tasmania	323	1,487	951
104·46	4,221	6,260	New Zealand	7,401	9,812	1,313
3161·83	28,156	67,691	Total Australasia ...	28,195	64,674	15,395
8210·36	...	686,506	Total of British Possessions	...	597,342	148,543

Trade of Australasia, 1874–1890.

The following summary shows the extent and progress of the External Trade of Australasia :—

ABSTRACT of Australasian External Trade for the years 1850, 1860, 1870, 1880, and the years 1889–90.

000's omitted.

	1850.	1860.	1870.	1880.	1889.	1890.
	£	£	£	£	£	£
	TOTAL IMPORTS.					
New South Wales.....	1,333	7,519	7,757	13,950	22,863	22,615
Victoria	745	15,094	12,456	14,557	24,402	22,954
New Zealand	500	1548	4,639	6,162	6,297	6,261
Queensland	...	742	1,577	3,087	6,052	4,827
South Australia..... ...	846	1,640	2,030	5,581	6,804	8,263
Tasmania	659	1,068	793	1,369	1,611	1,898
Western Australia.....	52	169	213	354	818	874
Total Australasia....	4135	27,780	29,465	45,050	68,847	67,692
	TOTAL EXPORTS.					
New South Wales.....	1,357	5,072	7,990	15,525	23,295	22,055
Victoria	1,042	12,963	12,470	15,955	12,755	13,266
New Zealand	300	549	4,545	6,353	9339	9,812
Queensland	...	523	2,534	3,448	7,736	8,555

ABSTRACT of Australasian External Trade—*continued.*

000's omitted.

	1850.	1860.	1870.	1880.	1889.	1890.
	£	£	£	£	£	£
South Australia.....	571	1,784	2,419	5,575	7,259	8,827
Tasmania	614	962	649	1,512	1,460	1,487
Western Australia.....	22	89	201	499	762	672
Total Australasia....	3,906	21,942	30,808	48,867	62,586	64,674
Total Trade (Imports and Exports).....	8,041	49,722	60,273	93,917	131,436	132,366

IMPORTANT Influences affecting the Values of Australasian Exchange Trade.

	1850.	1860.	1870.	1880.	1889.	1890.
	£	£	£	£	£	£
Number of Sheep in Australia—millions.....No.	16·3	22·6	51·3	72·2	100·3	114·1
Wool exported—thousand lbs. ..... No.	2821	4982	9966	21,558	26,244	24,067
Average price—						
Wool, per lb..... *s.*	1·5	1·10	1·8	1 1·5	1 1·6	0 10·3
Tin, per cwt..... £	3·90	6·20	6·25	4·45	4·65	4·71
Raw Sugar..... *s.*	28·00	31·25	22·50	21·71	15·51	12·64
Tea, per lb. ..... *d.*	15·00	19·00	16·30	13·47	10·79	10·65
Rum, per gall. ..... *s.*	2·41	3·00	2·33	1·73	1·66	1·77
Other Spirits..... *s.*	...	...	...	4·90	2·19	2·31

Importance of Colonial and Foreign Trade of the United Kingdom.

The total amount of Import trade of the United Kingdom during the ten years ending in 1890 has varied from £411,229,565 in 1880 to £420,691,997 in 1890. The proportion of Imports from the Colonies varied in the same time from £92,518,805 to £96,161,214, representing from about 22·50 to 22·86 per cent. of the total Import trade of the United Kingdom.

In the same period, the total value of Exports of the United Kingdom varied from £286,414,466 in 1880 to £328,252,118 in 1890. The Colonial portion varied from 27 to 30 per cent. of the total Export trade, British and Foreign. The following table shows more fully the distribution and extent of the trade of the United Kingdom for the years 1850–1890:—

DISTRIBUTION and Extent of the Trade of the United Kingdom, 1880 to 1890.

Imports, in Millions.			Country.	Exports, in Millions.		
1880.	**1885.**	**1890.**	From To	**1880.**	**1885.**	**1890.**
£	£	£	*British Colonies.*	£	£	£
30·1	31·9	32·7	India	32·0	30·9	35·2
25·7	23·3	29·4	Australasia	18·7	28·1	25·5
13·4	10·3	12·4	Canada and Newfoundland	8·5	8·4	8·3
23·3	18·9	21·7	Other Possessions	22·3	18.1	25·5
92·5	84·4	96·2	Total British Colonies	81·5	85·5	94·5
			Principal Foreign Countries			
107·1	86·5	97·3	United States	37·9	31·1	46·3
42·0	35·7	44·8	France	28·0	23·0	24·7
24·4	23·1	26·1	Germany	29·1	27·1	30·5
25·9	25·0	25·9	Holland	15·7	15·8	16·4
16·0	17·7	23·7	Russia	11·0	6·2	8·8
11·3	15·1	17·4	Belgium	13·0	13·9	13·6
11·0	10·9	11·9	Sweden and Norway	5·1	5·1	7·0
10·7	9·5	12·5	Spain	4·1	3·9	5·7
3·4	3·0	3·1	Italy	6·3	7·5	8·5
9·2	8·8	8·4	Egypt	3·1	3·7	3·5
3·9	4·7	4·8	Turkey	7·2	6·8	7·3
11·0	8·6	4·8	China	5·1	3·5	6·8
5·3	4·1	4·4	Brazil	6·9	5·6	7·8
0·9	1·9	4·1	Argentine Republic	2·5	4·8	8·5
5·3	4·8	7·7	Denmark and Iceland	2·3	2·3	2·9
3·8	2·7	2·9	Portugal	2·6	2·1	2·6
0·5	0·5	1·0	Japan	3·8	2·3	4·2
27·0	24·1	23·7	Other Countries	21·3	21·3	28·6
318·7	286·6	324·5	Total Foreign Countries	204·9	186·0	233·7
411·2	371·0	420·7	Total Trade of the United Kingdom	286·4	271·5	328·2
p.c.	p.c.	p.c.	*Percentage.*	p.c.	p.c.	p.c.
22·49	22·75	22·87	With British Colonies	28·46	31·48	28·79
77·51	77·25	77·13	With Foreign Countries	71·54	68·52	71·21
100	100	100	TOTAL	100	100	100

The World's External Trade.

It is not possible to give an exact statement of the external trade of the world, owing to the imperfect manner in which the Statistics are presented in several foreign countries. In some are recorded only the imports of articles for home consumption and the exports of domestic products; while in others the figures refer to *general* imports and exports irrespective of ultimate destination or source. Only a few countries show particulars of both forms of exchange trade. Most of the figures shown in the following table are taken from the official records of the United Kingdom prepared by Mr. Giffen for the year 1889. In two or three instances where the figures for this year are not available, those referring to a former year are given.

The various countries are arranged according to the order of the importance of their trade. The British Empire, representing 28·10 per cent. of the total area and 34·48 per cent. of the total trade, takes the first position: her total trade (imports and exports) amounting to 1283·8 million pounds, or nearly equal to the trade of Germany, France, and the United States taken together. The next in importance is the German Empire with 513 millions, followed in order by France (379 millions), United States (408 millions), and Belgium (245 millions); Greece (with 10 millions) taking the lowest position in the order of all the countries shown.

In regard to the total value of the world's trade specified, representing 3723 million pounds sterling, it is shown that the British Empire takes the first position in relation to area—viz., £156·4 per square mile. Foreign Countries average £116·2 per square mile; and the average of the great countries, embracing more than half the total land surface of the globe, represents a total trade of £127·4 per square mile.

The figures relating to the number and tonnage of merchant steam and sailing vessels belonging to each country can only be regarded as rough approximates. The totals show 110,482 vessels, with an aggregate tonnage of 22 millions. Nearly 43 per cent. of the tonnage belongs to vessels of the British Empire.

EXTERNAL Trade of the Principal Countries of the World, with Number and Tonnage of Merchant Ships owned by each Country, year 1889.

Area, Square Miles.	Imports.			Exports.		Merchant Ships (Steam and Sailing).[a]	
	For Home Consumption.	Total.		Domestic Produce.	Total.	No.	Tonnage in thousands.
No. In thous.	£ In mills.	£ In mills.	*British Empire.*	£ In mills.	£ In mills.		
121·1	*	420·7	United Kingdom.....	248·0	328·8	21,779	7759
3161	*	67·7	Australasia.....	51·9	64·7	2849†	346†
944	*	86·7	India.....	*	105·4	10,486†	1387†
3983·9	*	111·4	Other British Possessions.....	*	99·9		
8210	*	686·5		*	597·3	35,114	9392
			Principal Foreign Countries.				
208·6	200·8	278·2	German Empire.....	158·3	234·3	3594	1321
204	172·7	212·8	France.....	148·2	192·1	15,194†	933
3580	152·7	155·2	United States.....	152·1	154·7	22,623	4307
11·4	62·3	124·3	Belgium.....	58·3	120·5	51	70
*	*	*	Hamburg.....	*	*	*	*
12·5	103·5	103·5[b]	Holland.....	89·9	89·9[b]	610	247
240·2	49·1	49·1[b]	Austria-Hungary[c].....	63·8	63·8[b]	352[c]	211[c]

* Information not available.

[a] Embracing all vessels above small coasting craft of small tonnage. [b] Home consumption or domestic products only. [c] Excluding small coasting vessels and fishing-boats.

EXTERNAL Trade of the Principal Countries of the World—*continued.*

Area, Square Miles.	Imports.			Exports.		Merchant Ships (Steam and Sailing).[a]	
	For Home Consumption.	Total.		Domestic Produce.	Total.	No.	Tonnage in thousands.
No. In thous.	£ In mills.	£ In mills.		£ In mills.	£ In mills.		
110·6	55·6	57·9	Italy	38·0	40·2	6721	824
8450	43·2	43·2[b]	Russia	76·6	76·6[b]	6383[c]	756[d]
194·7	*	34·1	Spain	*	35·3	1698[e]	598[e]
3925	26·2	26·8	China	22·9	23·5	127	38
1117	32·9	32·9[b]	Argentine Confederation	24·6	24·6[b]	460[f]	21[f]
170·7	*	20·7	Sweden	*	16·8	3822	505
1264	*	12·0	Turkey	*	7·0	875	413[e]
14·7	14·9	16·9	Denmark	9·6	11·6	3407	289
12·8	7·3	7·3[b]	Egypt	12·5	12·5[b]	31[f]	24[f]
290·7	13·6	15·6	Chili	13·7	14·3	166	138
50·1	*	14·7	Roumania	*	11·0	22	5[f]
147·6	10·1	10·1	Japan	10·6	10·7	1389	141
34·4	11·8	13·9	Portugal	5·7	7·8	443	123
741·8	*	8·3	Mexico	*	12·5	57[f]	20[f]
124·7	10·3	10·6	Norway	7·0	7·4	7285	1611
72·1	*	7·7	Uruguay	*	5·4	60[f]	20[f]
25·0	5·3	6·5	Greece	4·3	4·6		
21,002·6	...	1262·3		...	1177·1	75,370	12,615
29,212·6	...	1948·8	Grand Total	...	1774·4	110,484	22,007

Summary.

Area, Square Miles.		Total Trade, including Imports and Exports.	Trade.		
Thousands.	Per cent.		Millions. £	Per cent. to Total. No.	Per sq. mile. £
8210	28·10	British Empire	1283·8	34·48	156·4
21,003	71·90	Principal Foreign Countries	2439·4	65·52	116·2
29,213	100·00		3723·2	100·00	127·4

* Information not available.

[a] Embracing all vessels above small coasting craft of small tonnage. [b] Home consumption or domestic products only. [c] Figures for 1883. [d] Figures for 1883. [e] Figures for 1888. [f] Latest figures ascertained.

RAILWAYS IN TASMANIA.

Launceston and Western Railway (Government Line). Length, 45 Miles; originally 5ft. 3in. Gauge, now altered to 3ft. 6in.

The sod of the first railway in Tasmania, connecting Launceston with Deloraine, was turned by His Royal Highness the Duke of Edinburgh in the year 1868, and three years after, on the 10th February, 1871, the line was

opened for traffic. This line was originally projected by a private Company (The Launceston and Western Railway Company). Only one-ninth of the original capital, however, (£50,000), was subscribed by the shareholders, the remainder of the capital (£400,000) having been raised by the Government, on the condition that the interest thereon would be paid, as a first charge, out of the profits of the undertaking, or, failing that, by a levy of a special rate upon the real property of the Railway District, which had previously been assented to by a poll of the ratepayers. Although the line passed through the finest tract of agricultural land in the Colony, the traffic receipts during the first two years barely covered working expenses, and the Company being involved in financial difficulties, it was arranged to transfer the line to the Government upon certain terms. This transfer was effected on the 3rd August, 1872, from which time it has been successfully worked by the Government.

Tasmanian Main Line Railway (Company). Length, 122 *Miles; Gauge*, 3*ft.* 6*in. (Single Line).*

Although agitation long existed for the construction of a line of railway between the two principal centres, Hobart and Launceston, and although Parliament granted a vote of £5000 for a survey so far back as the year 1863, it was not until the year 1870 that the Government entered into an agreement with Mr. Audley Coote—who represented an English Company—giving it the right to construct a line between Hobart and Launceston, or between Hobart and Evandale Junction with running powers over the Launceston and Western Railway to Launceston, the Government guaranteeing 5 per cent. on capital expended during construction, and a profit of £32,500 per annum for 30 years from the day of opening.

The construction of the line was soon after commenced, and the Government laid down a third rail for the 3ft. 6in. gauge upon the Launceston and Western Railway, the Tasmanian Main Line Railway Company having previously obtained running powers over that part of the line to Launceston. Although train service was carried on by the contractors between Hobart and the Evandale Junction from March, 1876, the line was not formally acknowledged as open for traffic by the Company until 1st November, 1876, from which time the line has been continuously worked by the Tasmanian Main Line Railway Company up to October, 1890, when it was purchased by the Government for the sum of £1,106,500.

Emu Bay and Mount Bischoff Railway (Company). Length, 48 *Miles; Gauge*, 3*ft.* 6*in. (Single Line).*

This line, originally worked as a horse-tramway, was converted into a 3ft. 5in. gauge railway, and opened for traffic between the Mount Bischoff Tin Mines and the port at Emu Bay in the year 1884. It is entirely a private undertaking, receiving no direct aid from the State, further than a right to levy somewhat higher rates for freight than are usually obtained on other railways.

Progress of Tasmanian Railway Construction.

The following summary shows the progress of railway construction since the beginning:—

	Miles.	Opened for traffic.
1. G. Launceston and Western, Launceston to Deloraine	45	10 Feb., 1871
2. G. Tasmanian Main Line Railway, Hobart to Evandale Junction, with running powers to Launceston ...	122	1 Nov., 1876
3. C. Emu Bay and Mount Bischoff, Emu Bay to Waratah	48	14 Juy, 1884
4. G. Oatlands Branch, Parattah to Oatlands	4½	13 May, 1885
5. G. Mersey Extension, Deloraine to Formby	37	30 May, 1885
6. G. Fingal Branch, Corners to Avoca	46	29 June, 1886
7. G. Derwent Valley Branch, Bridgewater to New Norfolk.....	15	1 Sept., 1887
8. G. Extension, ditto, New Norfolk to Glenora	9½	27 July, 1888
9. G. Scottsdale Line, Launceston to Scottsdale	47	9 Aug., 1889
10. G. Chudleigh Branch, Deloraine to Chudleigh.....	12½	5 April, 1890
11. G. Extension, Formby to Ulverstone	11½	8 July, 1890
Total to July, 1890 { Government.....	350	
{ Company	48	
	398	

G. indicates Government Railways. C. indicates Company's Railway.

Beside these there are several other branches or extensions of the Government lines authorised and being constructed ; viz.—

Green Ponds Branch—Brighton to Apsley	27 miles
Sorell Railway—Bellerive to Sorell.....	15 „
Zeehan Railway	29 „
TOTAL.....	71 „

These, apart from other lines for which surveys have been made, make up a length of 470 miles of railway,—equivalent to 180 miles of line for every 1000 square miles of territory ; 329 miles for every 100,000 persons ; or 297 persons to each mile of railway. Taking the size of the Colony into consideration, the progress made in opening up the country compares favourably with the larger sister colonies, where railways were established much earlier.

Progress of Railways in Australasian Colonies compared.

The following summary shows that, in relation to area—the true mode of comparison,—Tasmania ranks third among the Australasian group in the development of her railway system :—

	Miles of Railway.	Miles of Railway open or being constructed.		Persons to each mile of Railway.
	No.	Per 10,000 square miles.	Per 100,000 persons.	
1. Victoria.....1890	2900	330	256	391
2. New Zealand 1890	2121	203	339	297
3. Tasmania 1890	473	180	329	304
4. New South Wales 1890	2414	78	215	465
5. Queensland 1890	2743	41	661	154
6. South Australia ...1890	1682	19	525	193
7. Western Australia 1890	819	7	1815	55
Australasia ... 1890	13,152	42	348	286

RAILWAYS in various Countries, in the order of those showing the largest development of Railways in relation to Area.

Among densely populated Countries of Europe—	Miles of Railway per 10,000 square miles.
1. Belgium	2441
2. United Kingdom	1807
3. Netherlands	1291
4. Switzerland	1210
5. German Empire	1191
6. France	1124
7. Denmark	819
8. Malta	756
9. Italy	708
10. Austria and Hungary	670
11. Portugal	344
12. Spain	306
13. Roumania	306
14. Sweden and Norway	199
15. Servia	180
16. Greece	166
17. Russia	94

Ex-European Countries—	Miles of Railway per 10,000 square miles.
1. Barbados	1412
2. Mauritius	1295
3. Egypt	870
4. United States	450
5. Victoria	330
6. Trinidad	309
7. New Zealand	203
8. Natal	181
9. Tasmania	180
10. India	180
11. Jamaica	160
12. Cape of Good Hope	85
13. New South Wales	78
14. Ceylon	76
15. Japan	64
16. Chili	62
17. Mexico	56
18. Uruguay	55
19. Queensland	41
20. Argentine Republic	40
21. Canada	38
22. Peru	36
23. Newfoundland	27
24. South Australia	19
25. Brazil	17
26. Turkey in Europe	8
27. Western Australia	7
28. British Guiana	2

Thus it would appear that Belgium takes first rank among all countries as having the largest number of miles of railway (2441) in relation to area, the United Kingdom coming next with 1807 miles of railway per 10,000 square miles.

Among 28 ex-European countries Barbados takes the highest rank, with 1412 miles per 10,000 square miles. In the first ten of this group it is locally interesting to observe that three Australasian Colonies are included—viz., Victoria, New Zealand, and Tasmania—taking 5th, 7th, and 9th rank respectively.

DEVELOPMENT of the Railways of the World,* 1830 to 1888-90.

	Miles open.
1830	206
1840	5339
1850	23,628
1860	66,420
1870	137,940
1880	221,870
1888-90	373,732

* Figures from 1830 to 1880 computed from comparative table in *Kilometres* given in *Almanach de Gotha*, p. 1083, year 1884.

RAILWAYS of the World, arranged in the Order of their importance.

IN BRITISH POSSESSIONS.				IN PRINCIPAL FOREIGN COUNTRIES.		
Country.	Miles open or being constructed.		Persons per mile of rail.	Country.	Miles open or being constructed.	
	No.	Per 10,000 sq. miles.			No.	Per 10,000 sq. mls.
1888-90.				1888-90.		
United Kingdom....	20,073	1657	1807	United States.....	161,255	450
India	16,996	180	12,970	German Empire.....	24,845	1191
Canada.....	13,256	38	364	France.....	22,929	1124
Australasia (Total)	13,162	43	286	Russia-in-Europe	17,594	94
Victoria	2900	330	256	Austria-Hungary.....	16,096	670
Queensland.....	2743	41	611	Italy	7830	708
New South Wales...	2414	78	215	Spain.....	5951	306
New Zealand.....	2121	203	339	Sweden and Norway.....	5869	199
South Australia.....	1682	19	525	Brazil.....	5546	17
Cape of Good Hope	1890	85		Argentine Republic.....	4506	40
Western Australia...	819	7	1815	Mexico	4175	56
Tasmania	473	180	329	Belgium.....	2776	2441
Natal.....	340	181	1600	Switzerland.....	1869	1210
Ceylon.....	192	76	15,040	Chili.....	1801	62
Newfoundland	112	27	1724	Peru.....	1625	36
Mauritius.....	92	1295	4108	Netherlands.....	1616	1291
Jamaica	67	160	9556	Roumania	1537	306
Trinidad.....	54	309	3671	Denmark	1211	819
Barbados	24	1412	7595	Portugal	1188	344
British Guiana.....	21	2	13,253	Egypt.....	1115	870
Malta	9	756	18,400	Turkey in Europe	1024	8
				Japan.....	949	64
	79,430	97	—	Greece.....	416	166
				Uruguay.....	399	55
				Servia	339	180
				Total Foreign Countries	294,302	140
				Summary.		
				Total Principal Foreign Countries	294,302	140
				Total British Possessions	79,430	97
				All Countries.....	373,732	128

A more vivid conception of the extent of the principal railways of the world may be gained by contrasting their respective lengths with the mean circumference or diameter of the globe; thus :—

The Railways of the	World	would girdle the earth		15·04	times.
,, ,,	United States	,,	,,	6·49	,,
,, ,,	British Possessions	,,	,,	3·07	,,
,, ,,	Germany	,,	,,	1·00	,,
,, ,,	France represents the diameter of the earth...			2·90	,,
,, ,,	United Kingdom	,,	,,	2·54	,,
,, ,,	Russia	,,	,,	2·23	,,
,, ,,	India	,,	,,	2·15	,,
,, ,,	Austria-Hungary	,,	,,	2·04	,,
,, ,,	Australasia	,,	,,	1·66	,,
,, ,,	Canada	,,	,,	1·68	,,

Assuming that the railways of the world are merely reckoned as "single line" throughout, and that at least 100 tons of steel rails are required for each mile open, then the steel necessary to lay 373,732 miles of railway would represent 37 million tons of steel, or 168 million cubic feet, *i.e.*, nearly twice the size of the Great Pyramid of Egypt, and about 5½ times its weight.

Results of the Working of Tasmanian Railways.

A full analysis of the working of Tasmanian Railways is given in the eight tables following. It is difficult to gauge the financial prospects of the various Government lines, as new extensions into fresh districts have the immediate effect of concealing the true progress of the portions which had been constructed first, but had barely time to reveal local progress arising out of the new industries being developed. Naturally, the earlier portions were constructed within the more densely centred Districts. The later extensions are projected into more and more thinly peopled districts, and the effect upon receipts for a time must be the arrest or decline of average receipts *per mile open* and *per train mile*, even although the aggregates show a steady increase throughout. This effect is well exemplified by reference to the development of the Government Railways for different years.

GOVERNMENT RAILWAYS.—Receipts.

Year.	Miles Open.	Gross.	Net.	Per Mile.	Per Train Mile.	Per cent. Profit relative to Capital expended.	Per cent. Working Expenses to Receipts.
	No.	£	£	£	*s.* *d.*		
1873.....	45	17,093	3441	379·9	4 1	0·81	79·9
1878.....	45	22,190	4509	493·0	4 4·3	1·03	79·7
1882.....	45	27,686	9878	615·0	5 4·7	2·26	64·4
1888.....	157½	59,890	2591	391·9	3 4·6	0·22	95·7
1889.....	204½	75,925	18,094	431·2	3 9·8	1·16	76·1
1890.....	350	106,232	20,012	424·5	3 10·1	0·68	81·2

Cost of Working.

The inverse of the preceding conclusions ought to be expected as regards cost of working; for as lines are projected into more thinly peopled districts the *train service per mile open* ought to be smaller, and the relative cost *per train mile* and *per mile*, less. It is obvious that fixed charges, such as management and station agencies, should relatively decrease, with a corresponding increase in the absolute number of train miles run; thus—

GOVERNMENT RAILWAYS.—Cost of Working.

	Miles Open.	Total Amount.	Per Mile.	Per Train Mile.	Train Miles.	
					Total.	Per Mile.
	No.	£	£	*s.* *d.*		
1873.....	45	13,652	303·3	3 3·1	83,682	2260
1878.....	45	17,681	342·2	3 5·7	101,712	2260
1882.....	45	17,808	341·5	3 5·6	102,739	2283
1888.....	157½	57,279	375·0	3 2·9	353,515	2313
1889.....	204½	57,831	328·5	2 10·9	397,354	2257
1890.....	350	86,220	344·6	3 1·4	552,689	2208

This comparative statement proves the correctness of the conclusions arrived at.

GOVERNMENT RAILWAYS.

SUMMARY for Five Years ending 31st December, 1890.

		1886.	1887.	1888.	1889.	1890.
Miles open on 31st December	No.	133	148	157½	204½	350*
Total cost of construction and equipment	£	872,332	976,957	1,165,269	1,549,848	2,900,362
Ditto ditto per mile	£	6558	6601	7398	7578	8269
Gross earnings	£	45,924	53,954	59,890	75,925	106,232
Working expenses	£	37,917	49,608	57,279	57,831	86,220
Profit on working	£	8007	4346	2591	18,094	20,012
Proportion of working expenses to gross earnings	Per cent.	82·56	91·94	95·67	76·16	81·16
Profit on working per £100 capital expenditure	„	0·90	0·44	0·22	1·16	0·68
Passenger journeys	No.	193,829	246,265	282,436	316,498	464,064
Average distance travelled per passenger	Miles.	20·47	20·52	20·49	22·32	21·92
Average rate per passenger	*s. d.*	2 3·80	2 1·74	2 0·97	2 1·82	2 3·27
Ditto per passenger per mile	Pence.	1·36	1·25	1·21	1·15	1·24
Goods tonnage	No.	42,661	68,113	84,080	110,949	141,327
Average distance travelled per ton	Miles.	28·77	30·64	33·21	32·01	33·42
Average rate per ton	*s. d.*	6 5·45	4 11·09	4 5·29	4 8·80	5 2·58
Ditto per ton per mile	Pence.	2·69	1·93	1·60	1·77	1·87
Train mileage	No.	224,143	295,432	353,515	397,354	552,689
Average ditto per mile open*	No.	2114	2141	2313	2257	2208
Engine mileage	No.	246,269	334,958	409,306	477,250	672,389
Gross earnings per train mile	*s. d.*	4 1·1	3 7·8	3 4·65	3 9·85	3 10·13
Ditto per mile worked*	£	433·2	390·9	391·97	431·29	424·55
Working expenses per train mile	*s. d.*	3 4·6	3 4·3	3 2·9	2 10·9	3 1·44
Ditto per mile worked*	£	357·6	359·4	375·0	328·5	344·56
Locomotives	No.	17	23	21	25	42
Other vehicles	No.	392	542	555	567	999

* Miles worked, 1890, 250·22.

Working of the Tasmanian Main Line Railway.

The following summary, selecting five yearly intervals, reveals the progress made in working this railway for the years 1879, 1883, 1888, and 1889:—

	1879.	1883.	1888.	1889.
Miles open ..... No.	122	122	122	122
Miles worked..... No.	133	133	133	133
Gross receipts ..... £	49,727	69,010	76,094	81,658
Working expenses ..... £	52,747	68,973	71,565	81,588
Profit ..... £	...	37	4529	70
Loss ..... £	3020	...	...	...
Receipts—				
Per mile..... £	373·8	518·9	572·1	613·9
Per train mile ..... *s. d.*	3 4·8	4 5·7	3 10·8	4 2·9
Expenses per mile ..... £	396·6	518·6	538·0	613·4
Ditto per train mile ..... *s. d.*	3 7·3	4 5·7	3 8·0	4 2·8
Receipts per passenger per mile *s. d.*	6 3·7	3 1·6	2 2·8	2 3·7
Train miles per mile ..... No.	2197	2318	2934	2894
Profit per cent. to capital outlay.....	...	0·03	0·38	0·01
Working cost per cent. to receipts...	...	...	94·6	99·9

During the eleven years receipts have increased by £31,931, or 64·2 per cent., and the latter year shows a profit on working of £70, or 0·01 per cent. on capital outlay, as contrasted with a positive loss on working of £3020 in the year 1879. The reason why the profit had not more markedly increased in correspondence with receipts is due to the fact that the gain in receipts is counterbalanced in the latter years by extra service rendered for the sake of short-journey traffic, as shown by the lowered value of the fare per passenger, and by the train service *per mile* having increased nearly 31 per cent., the expenses thus absorbing the greater part of the improvement in revenue.

This line was taken over by the Government on 1st October, 1890.

Working of the Emu Bay and Mount Bischoff Railway.

From a financial point of view, as an undertaking this line is worked with great success, having yielded during the five years of working an average annual profit of 3·79 per cent. on capital outlay.

This result with the small extent of traffic could not be attained were it not for a combination of peculiarly favourable local conditions, among which are the following :—

(1.) Low cost of construction and equipment, only averaging £3481 per mile.

(2.) Light traffic and a small train service; the latter only representing 699 train miles per mile per year, and enabling the line to be worked at the very low cost of £229·89 per mile per year.

(3.) The advantage of the local conditions, securing the greater part of its freight for the whole distance of working, and the value of the goods carried—tin ore chiefly—permitting of a high rate of carriage—*e.g.*, £2 15*s.* 9*d.* per ton for a distance not exceeding 48 miles—averaging 10*s.* 0·48*d.* per train mile. If such rates were charged upon Government railways, securing a similar yield of receipts per train mile, the year 1889 would have shown a profit on working equal to £141,605, or 9·13 p cent. on capital outlay.

EMU BAY AND MOUNT BISCHOFF RAILWAY.—Summary for Years 1886-90.

Particulars.	1886.	1887.	1888.	1889.	1890.
Miles open ..... No.	48	48	48	48	48
Miles worked ..... No.	48	48	48	48	48
Total cost of construction and equipment ..... £	153,133	153,209	153,209	187,198	188,520
Ditto, per mile ..... £	3192	3192	3192	3900	3927
Passengers carried ..... No.	5092	6924	7691	9226	8842
Average fare per passenger ..... *s. d.*	9 4·24	7 6·5	7 9·46	6 3·38	6 6·28
Goods and minerals conveyed ..... tons	4694	4842	4561	4462	4683
Average rate per ton ..... *s. d.*	57*s.* 5·2*d.*	54*s.* 11·15*d.*	58*s.* 2·53*d.*	55*s.* 9·70*d.*	52*s.* 2·71*d.*
Train miles run ..... No.	33,358	31,868	33,294	33,733	35,743
Average mileage per mile open ..... No.	695	664	693	703	744
Engine miles run ..... No.	33,628	32,198	34,172	34,135	37,060
Gross receipts ..... £	17,062 10 8	17,229 16 11	17,486 19 7	16,935 1 2	16,673 2 10
Working expenses ..... £	7956 7 10	8526 11 0	10,913 6 11	12,752 14 1	15,146 16 0
Profit on working ..... £	9106 2 10	8703 5 11	6573 12 8	4182 7 1	1526 6 10
Ditto per £100 capital expenditure ..... £	5·96	5·68	4·29	2·23	0·81
Gross receipts per train mile ..... *s. d.*	10 2·76	10 9·75	10 6·35	10 0·48	9 3·95
Ditto mile worked ..... £	355·47	358·95	364·31	352·81	347·35
Working expenses per train mile ..... *s. d.*	4 9·24	5 4·21	6 6·66	7 6·73	8 5·71
Ditto mile worked ..... £	165·75	177·63	227·35	265·68	315·56
Locomotives ..... No.	2	2	3	3	3
Number of carriages, wagons, &c. ..... No.	27	27	22	26	29

Don Tramway.—Open to the General Public for Traffic.

Particulars.	1886.	1887.	1888.	1889.	1890.
Gauge ..... ft. in.	4 6	4 6	4 6	4 6	4 6
Miles open..... No.	13·5	11 5	11	11	11
Miles constructed..... No.	13·5	13 5	13	13	13
Cost of construction and equipment £	9356	9356	9750	9838	9926
Ditto per mile ..... £	693·04	693·04	886·36	894·3	894·6
Gross receipts ..... £	1913	1197	1011	1333	1169
Working expenses ..... £	1958	1192	1330	1274	1194
Receipts per train mile ..... *s. d.*	2 1·50	1 3·95	1 2·68	1 5·09	1·3
Ditto per mile opened..... £	141·70	104·87	91·91	121·18	106·27
Ditto per horse..... £	147·15	119·7	84·25	133·30	116·90
Working expenses per train mile *s. d.*	2 1·10	1 3·88	1 5·45	1 4·98	1·6
Ditto per mile open..... £	145·04	103·64	120·90	114·91	108·5
Ditto per horse ..... £	150·61	119·20	110·84	127·4	118·6
Ditto per £100 receipts ..... £	102·35	99·58	131·55	95·50	121·8
Profit on working ..... £	—45	5	—319	59	—·25
Ditto per £100 capital expended £	—·48	·05	—3·27	·59	—·59
Horses employed (Average) ..... No.	13	10	12	10	10
Men employed „ ..... No.	7	6	6	6	6
Carriages, wagons, &c. ..... No.	8	6	8	9	9
Train miles ..... No.	18,000[a]	18,000[a]	18,000[a]	18,000[a]	18,000[a]
Tons traffic carried ..... No.	5160	3446	2319	3335	3640
Passengers..... No.	[b]	[b]	[b]	[b]	[b]

[a] Estimated. [b] Passengers carried free; no record of number available.

ALL TASMANIAN RAILWAYS.—Summary for Five-yearly Period, 1885-89.

Particulars.	1886.	1887.	1888.	1889.	1890.
Miles open on 31st December ..... No.	303	318	327½	374½	398¾
Miles worked, average per year ..... No.	276	319	323	346	398¾
Total cost of construction and equipment ..... £	2,213,781	2,318,482	2,506,794	2,925,362	3,088,882
Ditto per mile ..... £	7306·21	7290·82	7654·33	811·38	7746·41
Passenger journeys ..... No.	536,893	596,691	669,902	715,855	
Ditto per 1000 train miles ..... No.	913	859	862	877	
Ditto per miles worked ..... No.	1771	1876	2046	2069	
Average fare per passenger ..... *s. d.*	2 4·50	2 2·08	2 4·68	2 3·51	
Goods and minerals tonnage ..... No.	89,226	131,282	161,169	196,225	
Ditto per 1000 train miles ..... No.	153	188	245	240	
Ditto per miles worked ..... No.	294	413	473	567	
Average rate per ton ..... *s. d.*	10 6·21	8 1·5	6 11·23	6 6·59	
Gross receipts ..... £	131,935	140,224	153,471	174,518	186,934
Working expenses ..... £	114,706	126,333	139,777	152,172	167,340
Profit on working ..... £	17,229	13,891	12,694	22,346	19,594
Ditto per £100 capital expenditure ..... £	0·77	0·60	0·50	0·76	0·63
Loss on working ..... £	—	—	—	—	—
Proportion of working expenses to £100 gross earnings	86·94	90·09	91·07	87·19	89·50
Train miles run ..... No.	587,917	694,567	777,035	815,986	844,704
Average mileage per mile worked ..... No.	2130	2177	2406	2358	2208
Receipts per train mile ..... *s. d.*	4 5·86	4 0·45	3 11·40	4 3·33	4 2·95
Ditto per mile worked ..... £	478·00	439·57	475·14	504·39	468·50
Working expenses per train mile ..... *s. d.*	3 10·82	3 7·65	3 7·17	3 8·75	3 9·61
Ditto per mile worked ..... £	415·60	396·03	432·74	439·80	419·40
Locomotives ..... No.	33	39	38	42	45
Carriages, wagons, &c. ..... No.	704	849	861	880	1028

Results of Working the Tasmanian Railways.

The following summary gives particulars of the working of Tasmanian Railways—State and Private—since their introduction :—

ALL TASMANIAN RAILWAYS.—Analysis showing the General Results from working the various Lines from 1871 to 1890.

	Miles open and worked.	Cost of Construction.	Receipts.	Working Expenses.	Train Miles per Mile.	Receipts.		Working Expenses.		Per Cent. Working Expenses to Receipts.	Per Cent. Net Earnings or Loss to Capital Expenditure
						Per Train Mile.	Per Mile worked.	Per Train Mile.	Per Mile worked.		
		£	£	£		*s. d.*	£	*s. d.*	£		
1871	45	426,279	12,629	12,038	1729	3 2·5	272·6	3 0·7	267·5	95·3	0·14
1872	45	426,279	13,636	13,786	1607	3 9·3	303·0	3 9·8	306·4	101·1	—0·03†
1873	45	426,279	17,093	13,652	1860	4 1·0	379·9	3 3·1	303·3	79·9	0·81
1874	45	427,946	18,325	15,630	2091	3 10·7	407·2	3 3·8	347·3	85·3	0·63
1875	45	429,604	19,436	16,213	1992	4 4·8	431·9	3 8·0	360·3	83·4	0·75
1876	167½*	1,498,486	37,450	44,619	...	...	...	...	...	119·1	—0·65
1877	167½	1,506,937	60,186	68,533	2046	3 6·2	359·3	4 0·0	409·2	113·8	—0·76
1878	167½	1,528,609	68,284	73,401	2200	3 8·6	408·8	3 11·9	439·5	106·9	—0·47
1879	167½	1,541,194	71,311	71,447	2352	3 7·6	427·0	3 7·6	427·8	100·1	—0·06
1880	167½	1,541,272	73,740	68,487	2400	3 8·1	441·5	3 5·0	410·0	92·8	0·34
1881	167½	1,619,367	78,867	72,146	2406	3 11·1	472·2	3 7·0	432·0	91·4	0·41
1882	167½	1,627,699	88,014	75,980	2425	4 4·2	527·0	3 9·0	454·9	86·3	0·74
1883	167½	1,633,638	98,532	91,541	2482	4 8·9	588·3	4 4·8	546·5	92·3	0·42
1884	215½	1,793,939	114,768	95,005	2600	4 6·2	532·6	4 1·3	444·3	82·8	1·10
1885	257	2,009,712	126,905	111,167	2217	4 9·2	528·8	4 2·1	463·2	87·6	0·78
1886	303	2,213,781	131,935	114,706	2130	4 5·9	478·0	3 10·8	415·6	86·9	0·77
1887	318	2,318,482	140,224	126,250	2177	4 0·4	439·6	3 7·6	395·8	90·0	0·60
1888	327½	2,506,794	153,471	139,777	2406	3 11·4	475·1	3 7·1	432·7	91·0	0·50
1889	374½	2,925,362	174,518	152,172	2358	4 3·3	504·3	3 8·7	439·8	87·1	0·76
1890	398¾	3,088,882	186,934	167,340	2208	4 2·9	468·5	3 9·6	419·4	89·5	0·63

* 167½ miles only open a portion of the year. † In last column — indicates p. c. loss. Where no sign occurs p. c. profit is indicated.

The reason why the profits in the latter years remain so low—ranging from 1·10 per cent. on capital in 1884 to 0·63 in 1890—arises from two separate causes. First, until the close of 1890 the Main Line Railway (133 miles) was worked by a private company, who, owing to the circumstance that it was entitled to a guarantee of five per cent. on £650,000, and other reasons, showed no desire to work the line in an economical way; for, while the traffic revenue actually increased 100 per cent. in the last eleven years, it was in each year practically wholly absorbed by increasing the train service and even by works of fresh construction and equipment. The purchase by the Government on 1st October, 1890, put an end to this objectionable mode of proceeding; and in the first quarter of the year after its transfer, the Manager of the Government Railways was enabled to show an actual profit on working of 2·38 per cent. The Company's net receipts for the year 1889 were practically *nil* (0·006 per cent.). The second cause which operates in keeping down the aggregate profit on working is due to the large proportion of mileage opened within the last seven years. As much as 138·3 per cent. of the lines opened are under seven years' old, and, as it requires at least a period of seven years for a railway to develop a profitable traffic, the stage has not yet arrived for showing profitable results. The effect, therefore, of the projection of this large proportion of our railways within the last seven years directly tends to conceal the true progress made in the older lines which, if reckoned with care by themselves, are now probably realising a profit of more than 3 per cent. on capital. This is a common experience in all new countries, and is the main cause why Australasian Railways as a whole only realized barely 3 per cent. on capital for the year 1890, there being about 43 per cent. of the railways represented by lines constructed in thinly populated areas within the last few years. There is every reason to believe, therefore, that when the proper time is allowed for the new railways to develop, all our railways will yield receipts which will fully cover both working expenses and interest on capital.

Comparative Results of the Working of Australasian Railways—1885—1890.

The following table shows the results of working the railways in Australasia from 1885 to 1890.

The general results are similar to those shown in the working of local railways ; that is, as extensions are made year by year into thinly populated districts, the broad tendency at first is shown in an arrest or even a decline of receipts and working expenses *per mile*, a decline of net receipts relative to cost of construction, and an increase of working expenses relative to receipts ; thus generally—

1. Mileage in 1885, 7990 ; increased to 11,182 in 1890.
2. Receipts per mile in 1885, £863 ; increased to £889 in 1890.
3. Working expenses per mile in 1885, £552·7 ; increased to £575 in 1890.
4. Profit per cent. to cost of construction in 1885, 3·14 ; decreased to 2·95 in 1890.
5. Train service per mile in 1885, 2753 ; increased to 2860 in 1890.
6. Percentage of working expenses to receipts in 1885, 64·07 ; increased to 64·64 in 1890.

RESULTS of the Working of Australasian Government Railways, Year 1890–91.

	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	New Zealand	All.
Miles open for traffic .....No.	2182	2763	2195	1666	182·5	350·75	1842	11,181·75
Average open for year .....No.	2182	2650·5	2141	1637·5	182·5	250·22	1842	10,885·72
Capital expended on lines open for traffic .....£	31,768,617	35,518,871	15,101,617	11,398,839	832,497	2,900,362	14,278,586	111,799,389
Ditto per mile.£	14,558	13,153	6880	6842	4564	8269	7752	10,000
Gross receipts .... £	2,974,421	3,298,567	908,704	1,223,999	45,814	106,232	1,121,701	9,679,438
Working expenses £	1,831,371	2,310,645	645,597	617,179	62,270	86,220	700,703	6,253,985
Net earnings ..... £	1,143,050	987,922	263,107	606,820	—16,456	20,012	420,998	3,425,453
Ditto per cent. to Capital expended .....£	3·60	2·78	1·74	5·32	—1·98	0·68	2·95	3·06
Per centage working expenses to receipts	61·57	70·05	72·81	50·42	135·90	81·16	62·47	64·64
Gross receipts per mile, open .....£	1363	1244	424	747	251	425	615	889
Ditto per train mile.....*d.*	84·88	64·62	57·75	77·94	22·44	46·13	93·00	72·28
Working expenses per mile, open...£	839	872	302	377	341	345	384	575
Ditto per train mile .....*d.*	52·26	45·27	41·00	39·30	30·50	37·44	58·09	46·70
Train Service.								
Total train miles per year..... No.	8,410,421	12,249,747	3,770,977	3,769,225	490,000	552,689	2,894,776	32,137,835
Ditto per mile open.....No.	3855	4622	1761	2302	2684	2209	1571	2950
Average number of trains per working day reckoned as through trains No.	12·31	14·77	5·63	7·35	8·58	7·06	5·02	9·43
Equivalent in through trains per day, for every £1000 per mile open .....No.	9·03	11·87	13·27	9·84	34·18	16·63	8·17	10·65

The following shows the order of the Colonies according to highest relative profit on working the railways belonging to their respective Governments :—

	Per centage net earnings to capital expended.	Receipts per mile open.	Equivalent train service per day (relative) per £1000 receipts per mile open.	Actual on miles.
	£	£	No.	
1. South Australia	5·32	747	9·84	7·35
2. New South Wales ...	3·60	1363	9·03	12·31
3. New Zealand	2·95	615	8·17	5·02
4. Victoria	2·78	1244	11·87	14·77
5. Queensland	1·74	424	13·27	5·63
6. Tasmania.....	0·68	425	16·63	7·06
7. Western Australia ...	—1·98	251	34·18	8·58
ALL	3·06	889	10·65	9·43

The Treasury statements differ from the Railway Department's slightly, owing to the fact that the former deals with moneys actually received and disbursed within the year, while the latter truly account for the actual receipts and expenditure of the financial year, irrespective of the time when the moneys were actually received or disbursed.

Profit on working Railways largely depends upon economy in the train service provided. The relative amount of profit from the working of the various Railways does not always depend upon the richness of traffic and traffic receipts. A great deal depends upon the method of working the Railways under varying conditions, as in densely or thinly populated localities.

This is significantly illustrated by contrasting the results of working the Railway systems of South Australia and Victoria; the former with only a traffic yielding £747 per mile, or less than half of the latter, is yet able to show a higher net profit (viz.. 5·32 per cent., as against 2·78 per cent.), owing mainly to the wise economy with which it limits and determines the train service in accordance with the varying resources of the districts through which the particular railway system passes. New Zealand also, with good results from a financial point of view, follows a similar economical course in the way in which it accommodates the train service to the varying needs of districts in varying stages of development. This Colony also only earns about one-third the receipts *per mile* of Victorian Railways, yet, by carefully limiting its train service—equivalent to 5·02 trains per mile per day—it is enabled to serve the needs of the Colony satisfactorily, if not luxuriously, at a cost of only £384 *per mile worked*, and is, therefore able to show a higher net profit (2·95 per cent. to 2·78) than the Victorian Railways, notwithstanding the advantage which a richer traffic (£1244 per mile) gives the latter Colony.

As an illustration of the importance of these considerations in relation to the finances of a young colony, it is noteworthy that, although the traffic receipts per mile upon the Main Line Railway of Tasmania for 1889 were greater than the average receipts per mile upon New Zealand railways, the former, practically, yielded no profit on working owing to its train service being as much as 80·4 per cent. above the average afforded in New Zealand; while the latter, by its greater economy of train service in the same year, yielded a profit of £233·5 *per mile* worked, amounting to £422,401, or nearly 3 per cent. on cost of construction, for the year 1889,—equivalent to a saving in that Colony of 13*s.* 7*d.* per head of the population, or equivalent to a reduction of its Public Debt of £12,068,600, reckoning interest at 3½ per cent. There can be no doubt, therefore, that it would be of the greatest advantage to the finances of the young thinly populated colonies if the admirable methods of working railways in Queensland, South Australia, and New Zealand were followed more closely in the extension of railway systems into the more thinly populated districts; and, indeed, it is satisfactory to note that in the mode of working the later extensions in Tasmania (Scottsdale and Fingal lines) the present very able Manager, Mr. Back, has already given indication that this very desirable course of economy in working will be closely followed in all new extensions into districts of a similar character as regards traffic and population. From the analysis of the preceding table it is clear, from a national and financial point of view, that the usual references to *cost per mile* or *per train mile* of themselves afford no reliable index to the economy of working railways. These indices are only of value when conjoined with the standards of economy as regards *Train Service per mile per day*, and *Train Service per* £1000 *Traffic Receipts per mile open.*

For Railways in thinly populated districts where the traffic is small (say yielding under £400 per mile per year), the average train miles, reckoned on number of through-trains per day, is the most reliable test of economical working For lines yielding more than £400 per mile per year, the best test of economy would be its measure above or below the standard of 10·65 *trains* per £1000 traffic receipts per mile, which last is the average for Australasian Railways as a whole for the year 1890-1.

Taking the account of the Railway Departments as giving a more accurate account of the financial working of the year, we find that in the year 1890-1 the results were as follows:—

		Per cent.
Estimated proportion of interest on £111,799,389 capital actually expended on lines open for traffic at 4·01 per cent	£4,483,155	100·00
Net profit on working	3,425,453	76·40
Interest deficiency	1,057,702	23·60

It does not follow, however, that Australasian railways are "unproductive," or "fail to accomplish the end for which they were introduced," as alleged by some detractors, because the net profit on working falls short of the whole of the interest due on borrowed capital by 23·60 per cent. The main object which the several Governments of Australia had originally in view in opening up the country by means of railways was not confined to the consideration of the possible trivial margin of profit which might be received into the state revenues from the railways themselves regarded as business undertakings, for it is a mere matter of local policy whether railways should not be treated like ordinary roadways and be maintained at the expense of the general community, instead of forming a direct tax upon those who directly use them. No one dare urge the plea, however, that our roadways do not add to the wealth-producing power of the country, although, directly, they do not contribute anything to the public treasury towards the interest on the large amount of capital expended on their construction.

To the country as a whole, or to its producing industries or consumers, the whole freight charges of a railway, even although covering interest on capital, forms the most insignificant portion of the actual value added to the country's wealth. The chief benefits to a country from railways cannot be directly ascertained by references to their finances. Of such the following are the most important:—

Chief Advantages of Railways.

1. By the saving of time, and the saving in cost of transit. Estimated at not less than double the gross receipts from existing freights and charges on railways.
2. By giving commercial value to vast natural products hitherto lacking commercial value owing to lack of cheap means of transit. (Value very great, but cannot be estimated approximately.)
3. By the impetus given to the creation of fresh wealth in areas formerly barren or unproductive. (Value very great, but cannot be estimated approximately.)

These three considerations alone fairly indicate the amount of wealth added to a country by means of railways, although, of necessity, not seen in the receipts of railways from a mere shareholder's point of view. Even although Items 2 and 3 cannot be ascertained, the value of the wealth added to the country from causes indicated by Item 1 alone show how largely, from a national and industrial point of view, the Government railways of Australia in the year 1890-1 "accomplish the end for which they were introduced." This is shown in the following statement:—

Year 1890–1.			Per cent. to total capital invested.
Gross receipts from Australasian railways.....	...	£9,679,438	8·66
Add saving to country represented on the same amount of traffic if carried at average rates charged prior to introduction of railways*	...	19,358,876	17·31
Total.....	...	29,038,304	25·97
Deduct railway working expenses	6,253,985	...	5·59
,, interest on capital invested, viz., £111,799,389 at 4·01 per cent.....	4,483,155	...	4·01
		10,737,140	9·60
Balance gain to the country from saving in cost of transit *.....	...	18,301,164	16·37

* If it be objected that the amount of existing traffic did not exist prior to the introduction of railways it is reasonable to claim the whole of the value of the products, *per se*, added to the country's wealth (see Item 2); and this value, on the average, must be regarded at least as not less than the value calculated in relation to their freight charges alone.

These figures clearly show that in the year 1890 alone the actual benefit to the Colonies, arising from the introduction of railways in respect of profit in working the same, and more particularly from what has been saved in the cost of transit, represents a sum of £18,301,164, equal to 16·37 per cent. of the total capital invested in Railways open for traffic in the same year, after discharging all expenses connected with working the railways, and after deducting the yearly charge for interest on borrowed capital. At 4 per cent. this represents a clear gain of capital wealth to the extent, £457 millions, notwithstanding that the net receipts in this year only contributed £3,425,453, or only 76·40 per cent. of the interest on capital. It must be borne in mind also, that this estimate does not include any portion of the great, though unascertainable, proportion of wealth which has been added to the country by the facilities which railways afford in opening up virgin lands to cultivation, and in utilizing natural products which, without railways, would remain barren or unproductive.

Moreover, although during the last seven years the average net receipts from Railways only contributed 3·07 per cent. towards the 4·13 due for interest, (*i.e.*, 74·34 per cent.) it must not be forgotten that in that time railway construction has increased 75·60 per cent. In England, where the population is very dense, it is estimated by good authorities that it takes seven years for a line to develop a profitable traffic in the sense in which profit is regarded by the railway shareholder. Surely in the almost virgin districts of Australia this margin should be extended. But even if we only allow seven years for railways extended into new districts, it follows that a development to the extent of 75·60 per cent. in seven years would have the effect of temporarily concealing what the true profits are in the older lines, and of concealing what the later lines may yield when a proper period for development is allowed.

Thus in the year 1889, of the 10,827 miles open for traffic, only 57 per cent. were open for seven years, and 43 per cent. for varying numbers of years ranging between 00 and 7 years. It is estimated that the nature of

development in a new country would only allow of a mean return of about 1·5 per cent. interest on the capital invested in respect of them. It is required therefore to show what return has been yielded by the older 57 per cent. upon the aggregate results, which for the same year actually afforded £3,141,000 net receipts, or 3·08 per cent. towards interest.

This is shown as follows :—

	Capital Invested.	Proportion of Net Receipts.	Proportion Net Receipts to Capital.
Lines 7 years' old (57 per cent.)...	55,910,000	2,450,640	4·38
Lines under seven years' old yielding on the average 1·5 per cent. on Capital	46,024,000	690,360	1·50
All Lines.....	£101,934,000	3,141,000	3·08

By this computation it is proved that the lines over 7 years' old, representing railways at the full stage of development, must have yielded a profit of 4·38 per cent. on capital invested, and this satisfactory result shows that, even as undertakings, in the eyes of a railway shareholder, they more than pay interest on capital invested; and it may be confidently expected, therefore, that when the younger lines arrive at the same stage of development a like profitable result will be attained. In every sense therefore it has been fairly demonstrated that the railways of Australia are most profitable investments, and in every way fulfil the valuable purposes for which they were intended by all who were most interested in their introduction.

Comparative Results of the Working of Australasian Railways—1885–1890.

	Average Miles Open.	Cost of Construction per Mile.	Train Miles.		Trains per Day per Mile.*	Receipts.		Working Expenses.		Percentage.	
			Per Mile Rail.	Per 100 Sq. Miles.		Per Mile.	Per Train Mile.	Per Mile.	Per Train Mile.	Profit to Cost of Construction.	Working Expenses to Receipts.
Victoria.	No.	£	No.	No.	No.	£	*d.*	£	*d.*		
1885.....	1680	13,235	4077	7794	—	1298·8	76·5	760·4	44·8	4·07	58·6
1886.....	1753	13,636	4140	8257	—	1328·7	77·0	747·6	43·3	4·26	56·3
1887.....	1949	12,980	4100	9093	—	1258·6	73·7	732·2	42·9	4·06	58·2
1888.....	2018	13,512	4499	10,334	14·3	1365·7	72·8	868·7	46·3	3·68	70·9
1889.....	2199	13,210	4858	12,153	15·5	1414·6	69·8	885·0	43·7	4·01	62·5
1890†.....	2651	13·153	4622	13,940	14·8	1244·	64·6	872·	45·3	2·78	64·6
New South Wales.											
1885.....	1778	14,044	3735	2137	—	1223·3	78·6	820·3	52·7	2·87	67·1
1886.....	1890	14,474	3428	2085	—	1142·9	80·0	789·9	55·3	2·44	69·1
1887.....	2081	12,760	3110	2083	—	1061·2	81·9	700·5	54·1	2·83	66·0
1888.....	2206	12,072	3325	2361	10·6	1137·6	72·2	715·6	51·7	3·49	62·9
1889.....	2252	13,409	3459	2507	11·0	1169·2	76·8	753·4	51·4	3·03	64·3
1890†.....	2182	14,558	3855	2709	12·3	1363·0	84·9	839·0	52·3	3·60	61·6
Queensland.											
1885.....	1434	6614	1827	392	—	482·3	63·4	309·7	40·7	2·68	64·2
1886.....	1555	6892	1713	398	—	412·1	57·8	306·7	43·0	1·53	74·4
1887.....	1765	6906	1578	447	—	407·5	61·9	302·8	46·0	1·52	74·3
1888.....	1931	6766	1669	482	5·3	402·3	57·8	263·1	37·8	2·06	65·4
1889.....	2064	6459	1757	543	5·6	385·8	52·7	288·1	39·3	1·51	74·6
1890†.....	2141	6889	1761	564	5·6	424·0	57·7	302·0	41·0	1·74	72·8
South Australia.											
1885.....	1063	6861	1803	212	—	605·6	80·6	383·0	51·0	3·24	63·3
1886.....	1382	6041	1679	216	—	477·7	68·3	309·4	44·2	2·34	64·8
1887.....	1420	6452	1813	262	—	526·6	69·7	307·7	40·7	3·12	58·4
1888.....	1500	6444	2005	331	6·4	635·0	76·0	303·6	36·3	5·12	47·8
1889.....	1543	6218	1756	341	5·6	528·3	72·2	296·1	40·4	3·73	56·04
1890†.....	1638	6842	2302	417	7·4	747·0	77·9	377·0	39·3	5·32	50·4
Western Australia.											
1885.....	124	3523	1642	19	—	219·2	34·4	227·3	33·6	−9·25	103·7
1886.....	154	4569	1678	24	—	233·1	33·3	268·8	38·4	−0·77	115·3
1887.....	171	4514	2099	32	—	252·7	28·9	296·4	33·9	−0·91	117·3
1888.....	204	4373	1913	33	6·1	204·2	25·6	234·5	29·4	−0·64	114·8
1889.....	497	4271	2037	36	6·5	217·2	25·6	289·0	34·0	−1·55	133·0
1890†.....	183	4564	2684	46	8·6	251·0	22·4	341·0	30·5	−1·98	135.9
New Zealand.											
1885.....	1654	7466	1826	2893	—	633·3	83·2	417·4	54·9	2·89	65·9
1886.....	1721	7564	1742	2882	—	578·3	79·7	404·8	55·8	2·30	70·0
1887.....	1753	7617	1680	2831	—	567·5	81·1	392·1	56·0	2·30	69·1
1888.....	1777	7582	1573	2676	5·0	561·4	85·6	364·1	55·5	2·60	64·8
1889.....	1897	7718	2155	3913	6·8	611·8	68·1	372·2	41·4	3·11	60·8
1890†.....	1842	7752	1571	2771	5·0	615·0	93.0	384·0	58·1	2·95	62·5
Tasmania.											
1885.....	257	7820	2071	2030	—	528·8	57·2	463·2	50·1	0·78	87·6
1886.....	303	7306	2130	2243	—	478·0	53·9	415·6	46·8	0·77	86·9
1887.....	318	7291	2177	2650	—	439·6	48·5	395·8	43·6	0·60	90·0
1888.....	328	7654	2406	2964	7·7	475·1	47·4	434·0	43·3	0·53	91·3
1889.....	375	7811	2358	3113	7·5	504·3	51·3	439·8	44·7	0·76	87·1
1890†.....	351	8269	2209	2032	7·1	425·0	46·1	345·0	37·4	0·68	81·2
Australasia.											
1885.....	7990	9859	2726	689	—	862·8	75·9	552·8	48·7	3·14	64·1
1886.....	8758	9849	2607	702	—	804·4	74·1	527·8	48·6	2·73	65·6
1887.....	9457	9479	2528	746	—	776·1	73·7	501·6	47·6	2·86	64·6
1888.....	9964	9384	2674	840	8·5	823·2	73·8	515·7	46·3	3·27	62·6
1889.....	10,827	9233	2676	930	8·5	795·7	71·39	510·0	45·7	3·08	64·1
1890†.....	10,886	10,000	2950	1016	9·4	889·0	72·3	575·0	46·7	3·06	64·6

* Per working day (313). † Government Railways are alone included for this year. The exclusion of the small proportion of Private lines does not appreciably affect the comparisons of different years.

Comparative Results of working Railways in various Countries.

		Miles open.	Cost of Construction.		Receipts.		Working Expenses.		Percentage.	
			Amount. — 000's omitted.	Per Mile Rail.	Per Mile.	Per Train Mile.	Per Mile.	Per Train Mile.	Profit.	Working Expenses to Receipts.
		No.	£	£	£	*d.*	£	*d.*		
Russia (Europe).....	1887	16,774	...	...	1545	86·2	886	49·2	...	57·0
Norway (State).....	1888-9	928	6486	6989	405	...	289	...	1·66	71·4
„ (Private).....	„	42	592	14,090	2073	...	884	...	8·72	42·6
Sweden (State).....	1888	1572	13,732	8737	739	53·5	491	35·5	2·84	66·4
„ (Private).....	„	3103	14,683	4732	368	...	215	...	3·63	58·4
German Empire	1888-9	24,845	503,771	20,282	2352	77·9	1275	41·4	5·40	54·2
Holland (State)	1888	927	21,336	23,918	1241	40·9	697	19·6	2·27	56·2
„ (Private)	„	788	...	...	1404	39·9	800	23·8	...	56·9
Belgium (State)	1889	1164	29,838	28,081	2750	54·9	1511	30·1	4·41	54·9
France (State)	„	20,440	562,105	27,295	2269	75·6	1172	39·1	3·99	51·7
Switzerland	1888	1869	36,489	20,488	1774	78·5	946	41·9	3·80	53·3
Italy	1887	7197	121,583	16,890	1318	70·2	875	46·5	2·62	66·4
Austro-Hungary	1888	15,618	305,042	19,516	1465	74·7	779	39·6	3·44	53·2
United States.....	1889	160,544	1,791,267	11,157	1288	68·5	760	46·5	4·73	67·9
United Kingdom	1890	20,073	897,472	44,710	3983	...	2152	...	4·09	54·0
England and Wales ...	„	14,119	740,034	52,410	4835	...	2374	...	4·23	54·0
Scotland.....	„	3162	120,140	38,000	2704	...	1411	...	3·40	52·0
Ireland	„	2792	37,299	13,358	1119	...	672	...	3·65	56·0
Australasia (State) ...	„	10,886	111,799	10,000	889	72·3	575	46·7	3·06	64·6

Maintenance of Roads.

The following is a statement showing the extent of the Roads maintained by the various Trusts and Boards throughout Tasmania, together with particulars relating to cost, and showing comparisons with the previous year; thus:—

	1890.			1889.		
	Road Trusts.	Main Road Boards.‡	TOTAL.	Road Trusts.	Main Road Boards.‡	TOTAL.
Mileage maintained * ..... No.	5084†	575	5659	4978*	645	5623
Expenditure..... £	32,969	10,371	43,340	30,212	11,773	41,985
Cost of maintenance per mile £	6·48	18·04	7·66	6·09	18·25	7·46

* Partly estimated.
† Only 2097 miles of this macadamised,—the remainder formed only.
‡ The roads under Main Road Boards are for the most part macadamised.

From the above it will be seen that the cost of the roads has increased £1355, or an increase of £0·20 per mile as compared with the previous year.

The main roads are for the most part macadamised; but it is estimated that there are only 2097 miles of the cross and by-roads under the Trusts either gravelled or macadamised. This is the principal reason why the maintenance of the main roads on the average exceeds that of the cross and by-roads by £12·38 per mile,—the former averaging £18·04 per mile and the latter £6·48 per mile. The financial state of the various Trusts and Boards is dealt with more exhaustively in Chapter XII.

Post Office.

The following Comparative Abstract shows the rapid growth of the Business of the Postal Department since 1880 :—

		1890.	1889.	1880.	1890 compared with		
					1889.		1880.
					Increase.	Decrease.	Increase.
Business.							
Letters received and despatched	No.	5,035,667	4,703,334	2,682,329	332,333	...	2,353,238
Packets	No.	963,170	651,706	149,967	311,464	...	813,203
Post Cards	No.	137,157	110,905	...	26,252	...	137,157
Newspapers	No.	4,941,571	4,424,657	2,195,733	516,914	...	2,745,738
Total	No.	11,077,565	9,890,602	5,028,029	1,186,963	...	6,049,436
Service.							
Post Offices	No.	315	293	201	22	...	114
Miles travelled by Mail Conveyance	No.	867,702	826,510	678,968	41,192	...	188,734
Receipts and Expenditure.							
Receipts	£	41,759	39,536	19,484	2223	...	22,275
Expenditure	£	46,137	44,283	27,154	1854	...	18,983

Thus, since 1880 the business of the Department, as represented by the number of letters, packets, post cards, and newspapers, has increased by 6,049,436, or 120·3 per cent. The number of Post Offices has in the same time increased by 114, or 56·7 per cent.; and the service, as represented by miles travelled by mail conveyance (867,702 miles), has increased by 188,734 miles, or 27·8 per cent.

The receipts, 41,759, exceed the previous year by £2223, and they exceed the last year of the decade (1880) by £22,275, *i.e.*, equal to an increase of 114·3 per cent.

The expenditure during the year 1890 exceeds that of the previous year by £1854, or 4·2 per cent., and the last year of decade (1880) by £18,983, or 69·9 per cent.

	1889.	1890.	1880.
	s. d.	*s. d.*	*s. d.*
Expenditure per mile travelled by mail conveyance	1 0·85	1 0·75	0 9·59
Ditto per article conveyed by post..	0 0·97	0 1·00	0 1·29

Post Office Money Orders.

		1890.	1889.	1880.
Orders issued and paid	No.	128,308	120,455	33,764
Transactions, total amount	£	298,208	290,703	115,356
Average amount per order	£	2·32	2·41	3·42

The above abstract shows an increase, as compared with the previous year, of—Orders, 7,853, or 6·52 per cent.; transactions, 7505, or 2·58 per cent. As compared with the year 1880, shows an increase of—Orders 94,544, or 2·80 per cent., and transactions, 182,852, or 158·5 per cent. The great expansion of the Money Order business has taken place principally in the transmission of the smaller amounts,—the average of £3·42 per order in 1880 having fallen to £2·41 in 1889, and to 2·32 in 1890. The continued progress of this business is, therefore, of a most satisfactory character.

Postal Notes, numbering 4556, value £1435, were issued during 1890.

Telegraph System.

The figures relating to the business of the Telegraph System of Tasmania are given as follows :—

PARTICULARS regarding the Tasmanian Telegraph System for the Year 1890.

		1890.				1889.
		Government Telegraphs.		*Cable Company.*	*All Tasmania.*	*All Tasmania.*
		Telegraph Department.	Govt. Railway Department.			
Stations	No.	138	54	2	194	178[a]
Officers	No.	203	54	27	284	259
Length of Line open — Pole miles	No.	1283	362	...	1645	1620½
Length of Line open — Cable miles	No.	...	...	359	359	359
Ditto Wire, miles	No.	1925	417	359	2701	2589½
Ditto Poles being constructed, miles	No.	120	...	...	120	...
Ditto Wire being constructed, miles	No.	120	...	...	120	...
Cost of construction and equipment	£	54,908	5695[e]	101,190	161,793	158,250
Ditto per mile, Pole lines and Cable	£	£36 16*s.* 9*d.*		£281 17*s.* 3*d.*	£80 14*s.* 8*d.*	£79 18*s.* 10*d.*
Paid Messages	No.	294,123	14,870	99,472	297,683[h]	225,833[h]
Free Messages	No.	55,357[b]	3543	...	55,865	54,726[h]
Total Messages	No.	349,480	18,413	99,472	353,548[i]	280,559[h]
Ditto per Pole or Cable mile	No.	272·39	50·86	277·08	176·42	141·78
Ditto per Wire ditto	No.	181·55	44·16	277·08	115·53	108·34
Receipts	£	15,896[d]	480	11,239[g]	27,615	23,305
Working Expenses	£	18,783[c]	1500[f]	4057[i]	24,340	21,809
Ditto per £100 Receipts	£	118·16	312·50	36·09	88·14	93·58
Profit	£	...	...	7182	...	...
Loss	£	2887	1020	...	3275	1496
		£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	*s.* *d.*	£ *s.* *d.*
Receipts per Pole or Cable mile		12 7 9	1 6 6	31 6 1	13 15 7	11 15 5
Ditto per Wire mile		8 5 1	4 2 10	31 6 1	9 0 6	9 0 0
Working Expenses, Pole mile		14 12 9	1 3 0	11 6 0	12 2 10	11 0 4
Ditto, Wire ditto		9 15 1	3 11 11	11 6 0	8 6 3	8 8 5

[a] Including two Telephone Stations. [b] Includes 12,000 Shipping Messages (estimated). [c] Including working expenses of Telephone Lines. [d] Does not include receipts from Telephone System. [e] Cost of 45 miles, £1000 estimated; cost of 133 miles estimated at £4695; balance erected and equipped by Telegraph Department. [f] Estimated. [g] Includes Government subsidies. [h] The same messages may be related to more than one local system, and hence the total for Tasmania is not necessarily the aggregate of the figures under each separate system. [i] Figures for 1889.

It appears that during 1890 the length of lines of wire opened for the transactions of the cable and land wires was equal to 2701 miles, *i.e.*, 111½ miles more than during the previous year. The total number of messages, 353,548 (of which 55,865 were free), is more than the corresponding number for last year by 72,989 messages, and the receipts, it will be observed, are more than the previous year by £4310, the latter being an increase of 18·49 per cent.

Telephone Systems.

The following summary gives concisely a clear statement of the rapid progress made in the extension of this very useful mode of communication in Hobart and Launceston :—

	1886.	1887.	1888.	1889.	1890.
HOBART.					
Private Lines—					
Circuits..... No.	42	39	44	45	47
Length of Wire..... Miles	50	56	63	59½	63
Annual Rental..... £	279	270	291	285	295
Rental received..... £	248	253	259	277	267
Exchange Lines—					
Circuits..... No.	146	172	211	244	268
Length of Wire..... Miles	52	84	103	110	132½
Annual Rental..... £	893	1087	1330	1535	1711
Rental received..... £	784	978	1198	1437	1532
Public Service Lines—					
Circuits..... No.	36	43	44	51	58
Length of Wire..... Miles	17	25	26	36	39½
Annual Rental..... £	231	287	293	381	420
NEW NORFOLK.					
Private Lines—					
Circuits.....No.	...	...	...	...	2
Length of Wire ..... Miles	...	...	...	...	1
Annual Rental ..... £	...	...	...	...	9
Rental received..... £	...	...	...	...	9
Exchange Lines—					
Circuits.....No.	...	..	14	18	11
Length of Wire ..... Miles	...	...	7	9	5¼
Annual Rental ..... £	...	...	84	111	68
Rental received..... £	...	...	7	110	68
Public Service Lines—					
Circuits.....No.	...	...	1	1	1
Length of Wire ..... Miles	...	...	½	½	½
Annual Rental ..... £	...	..	6	6	6
Rental received..... £	...	...	...	...	...
Trunk Line to New Norfolk—					
Circuits.....No.	...	...	20	25	17
Length of Wire ..... Miles	...	...	22	22	22
Annual Rental ..... £	...	...	59	77	53
Rental received..... £	...	...	5	73	53
LAUNCESTON.					
Private Lines—					
Circuits.....No.	17	24	29	31	31
Length of Wire ..... Miles	11	17	25	27¼	30
Annual Rental ..... £	95	130	180	170	166
Rental received..... £	73	110	206	161	127

	1886.	1887.	1888.	1889.	1890.
LAUNCESTON—*continued.*					
Exchange Lines—					
Circuits.....No.	137	161	177	184	192
Length of Wire ..... Miles	38	47	63	65½	71½
Annual Rental ..... £	882	980	1057	1118	1139
Rental received..... £	539	908	966	1051	1123
Public Service Lines—					
Circuits.....No.	12	13	15	18	19
Length of Wire ..... Miles	10	11	13	16¼	16¾
Annual Rental ..... £	77	89	106	115	121
ALL LINES.					
Circuits.....No.	390	452	555	617	646
Length of Wire ..... Miles	178	238	323	346¼	382
Annual Rental { Public ..... £	308	376	405	502	469
Annual Rental { Private..... £	2149	2467	2999	3298	3518
Annual Rental { All..... £	2457	2843	3404	3800	3987
Rental received from Exchange and Private Lines	1644	2248	2641	3109	3179

Thus, there is an increase of 29 Circuits as compared with the previous year, while the Annual Rental value has increased from £3800 to £3987, being an increase of £187, or 4·92 per cent.

Rates and Prices.

The current Rates and Prices, ruling over a large number of years, are given in the following tables.

Current Rates and Prices.

Rates of Wages.

Comparative Return showing the Rates of Wages during the Years 1841, 1851, 1861, 1871, 1881, 1889, and 1890, as far as can be ascertained from the Statistics of the Colony.

	1841.	1851.	1861.	1871.	1881.	1889.	1890.
Agricultural Labour:							
Ploughmen, per week	...	...	...	8/ to 20/	10/ to 18/	10/ to 20/	10/ to 25/
Farm Labourers, ordinary, ditto	...	...	...	6/ to 10/	7/ to 13/	8/ to 16/	5/ to 20/
Reapers, per acre	...	...	...	7/ to 10/	7/6 to 16/	7/ to 20/	4/ to 15/
Mowers, ditto	...	...	...	2/6 to 5/	2/6 to 6/	2/ to 6/	2/ to 14/
*Pastoral Labour—**							
Shepherds, per annum	...	...	...	25*l* to 40*l*	25*l* to 40*l*	30*l* to 50*l*	25*l* to 60*l*
Shearers, per 100 sheep	...	...	...	8/ to 16/	11/6 to 20/	12/ to 20/	12/ to 18/
Artisan & other general Skilled Labour—†							
Blacksmiths, per diem	...	...	...	5/ to 10/	5/ to 11/	6/ to 10/	8/ to 10/
Bootmakers, ditto	...	...	...	5/ to 9/6	5/ to 8/	5/ to 8/	6/6 to 8/
Bricklayers, ditto	6/ to 7/	5/	6/ to 10/6	5/ to 10/	7/ to 11/	7/ to 12/	6/ to 11/6
Carpenters, ditto	6/ to 7/	5/ to 6/	5/6 to 10/	6/ to 8/	7/ to 11/	6/ to 10/	7/ to 12/
Engineers, ditto	...	...	...	5/ to 10/	9/ to 13/6	8/ to 12/	8/ to 11/
Joiners, ditto.	6/6 to 8/	5/4 to 6/	6/6 to 10/	6/ to 8/	6/6 to 10/	7/ to 10/	5/ to 10/
Masons—							
Cutters, ditto	6/ to 8/	4/9 to 5/7	7/ to 12/	5/6 to 10/	7/ to 12/	6/6 to 12/	7/ to 12/
Builders, ditto	7/6 to 8/6	5/6 to 6/10	6/6 to 12/	5/3 to 10/	6/6 to 11/	7/6 to 12/	8/ to 12/
Painters, ditto	5/6 to 7/6	5/2 to 5/6	6/ to 10/9	5/ to 8/	6/ to 9/	3/ to 11/	7/ to 11/
Plasterers, ditto	6/ to 7/6	4/3 to 5/	7/ to 10/	5/ to 10/	5/ to 11/	6/ to 12/	7/ to 10/
Plumbers, ditto	6/6 to 8/6	4/6 to 8/	6/6 to 13/	6/ to 9/	8/ to 12/	7/ to 12/	7/ to 10/
Saddlers, ditto	...	...	...	5/ to 10/	5/6 to 9/	4/2 to 10/	5/6 to 8/6
Seamen, per month	...	...	...	2*l* to 4*l* 10/	3*l* to 6*l*	4*l* 7/6 to 5*l*	5*l* to 1*l*
Tanners, per diem	...	...	...	5/6 to 8/	5/ to 8/	4/2 to 9/	5/ to 9/
Wheelwrights, ditto.	...	...	...	5/3 to 8/	6/6 to 10/	5/ to 12/	6/ to 10/

* With rations. † Without rations.

COMPARATIVE Return showing the Rates of Wages—*continued.*

	1841.	1851.	1861.	1871.	1881.	1889.	1890.
Railways—†							
Guards, per diem	...	...	...	...	...	6/6 to 10/	6/6 to 11/
Porters, ditto	...	...	...	...	...	4/2 to 7/6	3/ to 8/
Enginemen, ditto	...	...	...	...	...	6/6 to 12/	6/ to 15/
Platelayers and Gangers, ditto	...	...	...	...	...	5/ to 11/	5/ to 10/
Drivers, ditto	...	...	...	...	...	8/ to 12/6	9/ to 15/
Firemen, ditto	...	...	...	...	...	7/ to 8/	6/6 to 12/
Fitters, ditto	...	...	...	...	...	8/ to 15/	9/ to 14/6
Turners, ditto	...	...	...	...	...	8/ to 15/	8/ to 15/6
Miscellaneous Labour—†							
Bakers	...	...	...	...	...	...	5/ to 10/
Butchers, per diem	...	...	...	...	5/ to 8/	5/ to 10/	5/ to 10/
Millers, ditto	...	...	...	5/ to 8/	6/ to 8/	6/ to 10/	6/ to 10/
Miners, ditto	...	...	...	...	7/6 to 8/4	10/	10/
Quarrymen, ditto	4/8 to 5/6	3/9 to 4/	4/ to 9/	5/ to 7/	5/ to 7/	5/ to 10/	5/ to 10/
Day Labourers, ordinary, ditto	...	...	...	3/ to 5/	4/ to 7/	4/ to 8/	4/ to 8/
Servants—*							
Coachmen, per annum	...	...	...	20*l* to 40*l*	18*l* to 50*l*	30*l* to 60*l*	25*l* to 60*l*
Grooms, ditto	...	...	...	18*l* to 35*l*	22*l* 10/ to 45*l*	20*l* to 75*l*	20*l* to 52*l*
Gardeners, ditto	...	...	...	16*l* to 30*l*	20*l* to 45*l*	20*l* to 104*l*	20*l* to 50*l*
Cooks, ditto	...	...	...	16*l* to 30*l*	20*l* to 40*l*	15*l* to 50*l*	15*l* to 64*l*
Laundresses, ditto	...	...	...	20*l* to 25*l*	18*l* to 35*l*	15*l* to 50*l*	15*l* to 40*l*
General Servants, ditto	...	...	...	15*l* to 25*l*	16*l* to 36*l*	10*l* to 36*l*	15*l* to 36*l*
Housemaids, ditto	...	...	...	16*l* to 20*l*	12*l* to 20*l*	14*l* to 30*l*	15*l* to 36*l*
Nursemaids, ditto	...	...	...	12*l* to 30*l*	12*l* 10/ to 25*l*	8*l* to 20*l*	8*l* to 20*l*

* With rations. † Without rations.

COMPARATIVE Return showing the General Retail Prices of Provisions and other Articles at Hobart, during the Years quoted, as far as can be ascertained from the Statistics of the Colony.

Articles.	1841.	1851.	1861.	1871.	1881.	1889.	1890.
Butter, Fresh ..... per lb.	..	2/3	1/4	1/ to 2/	10*d.* to 2/	10*d.* to 2/6	10*d.* to 2/6
Ditto, Potted.....ditto	..	1/	1/2	9*d.* to 1/	10*d.* to 1/4	9*d.* to 1/6	8*d.* to 1/6
Cheese, Colonial .....ditto	..	1/2	1/6	8*d.* to 9*d.*	6*d.* to 1/	6*d.* to 1/2	8*d.* to 1/
Ditto, English .....ditto	..	..	1/8	1/2	..	1/6 to 2/6	2/ to 3/
Eggs..... per dozen	..	..	..	1/ to 1/6	9*d.* to 2/6	10*d.* to 2/6	1/ to 2/6
Ham, Colonial .....per lb.	..	..	..	1/6	1/ to 1/3	9*d.* to 1/	10*d.* to 1/
Meat—							
Bacon.....ditto	..	1/	..	7½*d.* to 9*d.*	9*d.* to 1/	8*d.* to 1/	6*d.* to 1/
Beef .....ditto	5¾*d.*	4*d.*	5½*d.*	5½*d.* to 7*d.*	2½*d.* to 8*d.*	4*d.* to 8*d.*	6*d.* to 8*d.*
Mutton .....ditto	5¾*d.*	3*d.*	5½*d.*	2½*d.* to 6*d.*	2*d.* to 8*d.*	3*d.* to 6*d.*	3*d.* to 7*d.*
Milk..... per quart	..	..	8*d.*	6*d.*	4*d.* to 6*d.*	3*d.* to 6*d.*	4*d.* to 6*d.*
Bread..... per 2-lb. loaf	..	5*d.*	3½*d.*	3*d.* to 3½*d.*	2½*d.* to 3*d.*	3*d.* to 3½*d*	3½*d.*
Flour, Fine .....per ton	21*l*	10*l*	14*l* 10/	11*l* 10/ to 12*l* 10/	10*l* to 12*l*	10*l* to 12*l*	10*l* to 14*l*
Grain—							
Wheat .....per bushel	8/9	9/	5/ to 6/	4/9 to 5/	4/ to 5/	4/6 to 6/	4/6 to 6/
Barley .....ditto	6/	..	6/	3/9 to 5/	3/6 to 4/6	2/6 to 4/	2/6 to 4/6
Oats .....ditto	5/6	..	3/ to 4/	3/ to 3/9	2/6 to 3/	2/3 to 4/	1/9 to 3/6
Rice .....per lb.	2½*d.*	2*d.*	4*d.*	3½*d.* to 4½*d.*	3*d.* to 4*d.*	3*d.* to 4*d.*	3*d.* to 4*d.*
Sugar, Counter and Ration...ditto	3½*d.*	2½*d.*	4*d.*	3*d.* to 4½*d.*	3½*d.* to 5*d.*	3*d.* to 5*d.*	3*d.* to 5*d.*
Vegetables—Potatoes .....ditto	6*l*	3*l* 10/	4*l*	3*l* 10/ to 4*l*	3*l* to 4*l* 10/	4*l* to 7*l*	5*l* to 6*l* 10/
Spirits .....per gallon	..	..	1*l* 8/	1*l* 12/ to 2*l* 2/	1*l* 8/ to 1*l* 12/	1*l* 4/ to 1*l* 12/	1*l* 4/ to 1*l* 12/
Malt Liquors—Beer .....ditto	..	1/4	2/	2/	2/	2/	2/
Wines .....per doz.	..	..	..	1*l* 10/	1*l* 10/ to 3*l*	1*l* 4/ to 2*l* 8/	1*l* 4/ to 2*l* 8/
Tobacco .....per lb.	..	3/6	5/6	3/6 to 5/	4/ to 5/6	5/	3/6 to 5/
Tea .....ditto	3/3	1/1	2/6	1/6 to 3/6	2/ to 3/	1/4 to 2/	1/4 to 2/
Coffee .....ditto	..	1/	2/	1/8	2/	1/ to 1/6	1/ to 1/9
Candles, Tallow ..... ditto	..	4½*d.*	7*d.*	6*d.*	6*d.*	6*d.*	4*d.* to 6*d.*
Soap.....per cwt.	2*l* 8/	1*l* 8/	..	1*l* 16/ to 1*l* 18/	1*l* 10/ to 2*l*	1*l* 5/ to 1*l* 17/	1*l* 5/ to 1*l* 17/
Hay .....per ton	5*l* 10/	..	3*l* to 6*l*	2*l* 10/ to 3*l*	2*l* 10/ to 4*l*	3*l* 10/ to 6*l*	2*l* 5/ to 6*l* 10/
Straw .....ditto	..	..	..	2*l*	1*l* 15/ to 2*l* 10/	1*l* 10/ to 3*l*	1*l* 10/ to 3*l*
Firewood—Uncut .....per ton	..	9/	..	8/ to 12/6	9/ to 12/	10/ to 11/	10/ to 14/
Oil, Kerosene .....per gallon	1/9	4/	6/	3/6 to 4/	3/ to 3/6	2/4 to 2/9	2/6 to 2/9
Coals..... per ton	16/6	15/	..	18/ to 1*l* 3/	20/ to 30/	18/ to 25/	18/ to 25/

RETURN showing Average Prices of Fruit used in the manufacture of Jam for Season 1890.

		s.	d.			s.	d.
Apricots	per lb.	0	2	Plums (Egg)	per bushel	3	6
Blackberries	„	0	1	„ (Greengage)	„	3	6
Cherries	„	0	0¾	„ (Orlean)	„	3	0
Currants, Black	„	0	2	„ (Other)	„	3	0
„ Red	„	0	1½	Quinces	„	3	0
Gooseberries	per bushel	2	6	Raspberries	per lb.	0	1½
Peaches	„	3	0	Strawberries	„	0	2
Plums (Damson)	„	2	6				

CONTRACT PRICES.

RETURN of the Average Contract Prices of certain Articles supplied in Hobart to the Government of Tasmania during the year 1890.

Class.*	Order.	Articles.	Prices.
III.	21	Butchers' Meat—	
		Beef and Mutton ..... per 100 lbs.	25/
		Butter, Fresh ..... per lb.	11*d.*
		Ditto, Potted ..... ditto	9*d.*
		Eggs ..... per dozen	1/2
III.	22	Barley, Pearl ..... per lb.	2½*d.*
		Bread, Fine ..... per 100 lbs.	9/
		Currants ..... per lb.	5*d.*
		Flour, Fine ..... per ton	£8 13/9
		Oatmeal ..... per lb.	1$\frac{21}{32}$*d.*
		Raisins ..... ditto	6*d.*
		Rice ..... ditto	2$\frac{7}{8}$*d.*
		Sago ..... ditto	4½*d.*
		Sugar, Ration, (in Bond) ..... per ton	£14 7/6
		Ditto, Counter, (in Bond) ... per ton	£16 10/
III.	23	Brandy, Pale, (in Bond) ... per gallon	8/9
		Rum (in Bond) ..... per gallon	1/9½
		Gin (in Bond) ..... per case	12/3
		Malt Liquor—	
		Colonial Ale ..... per 54 galls.	£3 19/6
		Ditto, Porter ..... per 54 galls.	£4 4*s.*
		Wine, Port, (in Bond) ..... per gallon	8/3
		Vinegar ..... per pint	3*d.*
		Tea, Black, Congou, (in Bond) ... per lb.	7½*d.*
		Coffee, Whole, Roasted ..... ditto	1/6
		Tobacco, Cavendish, (in Bond) .... ditto	9*d.*
		Salt ..... ditto	¾*d.*
IV.	24	Candles, Composition ..... ditto	6¼*d.*
		Ditto, Tallow ..... ditto	3½*d.*
		Oil, Kerosene, (in Bond) ..... per gallon	11½*d.*
		Oil, Black ..... per gallon	4/9
		Soap, Yellow, Colonial ..... per lb.	1¾*d.*

Prices of Various Articles.

Textile Fabrics and Dress.

Return showing the Current Prices of Clothing, &c. paid in Hobart, for Persons of the Labouring Class in the Year 1890.

Men's.		s.	d.		s.	d.
Boots, strong	per pair	7	6	to	10	6
Caps	each	1	0	,,	3	0
Coats (Tweed)	,,	5	0	,,	15	0
Frocks, duck	,,	2	6	,,	3	6
Handkerchiefs, cotton	,,	0	2	,,	0	6
Hats, felt	,,	1	0	,,	4	0
Ditto, Manila or Panama	,,	1	6	,,	5	0
Ditto, straw	,,	1	0	,,	2	6
Jackets (Dungaree)	,,	4	0	,,	5	6
Shirts, Crimean	,,	4	0	,,	7	6
Ditto, white cotton	,,	3	0	,,	5	0
Ditto, coloured or striped cotton	,,	1	0	,,	3	6
Ditto, flannel (under)	,,	3	6	,,	5	0
Ditto, merino ,,	,,	1	0	,,	4	0
Shoes, strong	per pair	7	6	,,	10	6
Socks, cotton	,,	0	3	,,	0	9
Ditto, woollen	,,	0	9	,,	1	3
Stockings, cotton	,,	0	6	,,	1	0
Ditto, woollen	,,	1	0	,,	2	0
Trousers, common (tweed)	,,	6	0	,,	10	6
Ditto, duck or dungaree	,,	3	0	,,	3	6
Ditto, moleskin	,,	4	6	,,	9	0
Vests, common, (tweed)	each	3	6	,,	6	0
Suits, tweed or cloth		13	0	,,	40	0
Trousers and Vest		10	0	,,	25	0
Blankets	per pair	4	6	,,	17	6

Women's.		s.	d.		s.	d.
Bonnets, straw	each	0	6	to	3	0
Calico, grey	per yard	0	2	,,	0	6
Ditto, white	,,	0	2	,,	0	6
Chemises	each	1	6	,,	3	0
Drawers, L. cloth	,,	1	6	,,	2	6
Dresses, merino or alpaca	per yard	0	4	,,	1	6
Ditto, print	,,	0	3	,,	0	8
Ditto, muslin	,,	0	4	,,	0	8
Ditto, wincey	,,	0	4	,,	1	2
Flannel	,,	0	7	,,	1	6
Hats, straw	each	0	3	,,	3	0
Mattresses	,,	10	0	,,	15	0
Night-dresses, L. cloth	,,	2	0	,,	5	0
Palliasses	,,	7	6	,,	12	6
Petticoats, calico	,,	1	0	,,	3	0
Ditto, flannel	,,	3	0	,,	5	0
Shawls, woollen or printed	,,	5	0	,,	15	0
Sheeting, grey calico	per yard	0	7½	,,	1	1
Ditto, white	,,	0	10½	,,	1	6
Shoes	per pair	6	0	,,	10	0
Stays	,,	1	0	,,	3	6
Stockings	,,	0	3	,,	1	0

HOUSE Rent, &c. in Hobart and Launceston, and its Suburbs, 1890.

	Hobart.	Launceston.
3 Rooms, per week	5*s.* to 7*s.*	6*s.* to 8*s.*
Ditto, with Garden	7*s.* to 9*s.*	7*s.* to 9*s.*
4 or 5 rooms, per week	9*s.* to 13*s.*	10*s.* to 15*s.*
Ditto, with Kitchen and Garden, ditto	13*s.* to 18*s.*	15*s.* to 20*s.*
Larger Houses, per year	£50 to £100	£50 to £80
Superior ditto, ditto	£100 to £300	£80 to £200
Board and Lodging, per week	15*s.* to 25*s.* and upwards.	14*s.* to 30*s.*

CHAPTER XI.

Accumulation.

Coinage and Accounts.

THERE is no Mint in Tasmania, and the coinage is that of the United Kingdom, which in all respects is similar to that used in the neighbouring Colonies. The accounts are accordingly kept in sterling money (*£ s. d.*) The limit of legal tender for silver is forty shillings; bronze pence, twelve (1*s.*); and bronze half-pence, twelve (6*d.*)

Rates of Exchange.

The rates of exchange for bank or mercantile bills is nearly the same as in former years as regards the Australasian Colonies. The average selling rate with London at 60 days' sight has been considerably reduced since 1882.

	London.	Victoria.	New South Wales.	South Australia.	Western Australia.	Queensland.	New Zealand.	Fiji.
Average purchasing rate at sight or on demand— Discount, per cent.	—	¼	½	½	1½	½	¾	1
Average purchasing rate at 60 days' sight	¼	—	—	—	—	—	—	—
Average selling rate at 60 days' sight	¾	—	—	—	—	—	—	—
Ditto, at sight or on demand	—	¼	½	¾	1½	½	¾	1½

Rates of Discount.

The average rates of discount during 1890 were as follows; viz.—For Bills having a currency of 95 days, 7 per cent.; for bills having a currency beyond 95 days, 8 per cent.

Interest on Fixed Deposits.

The interest allowed on Fixed Deposits during 1890 varied as follows :— For three months, 3 per cent.; for six months 4 per cent., for twelve months 5 per cent. The rates for the previous years were the same.

Banks.

There were five banks of issue in Tasmania during the year 1890, possessing 31 branches or agencies within the Colony. On the 31st December the total liabilities amounted to £4,511,730, and the total assets amounted to £4,819,908. The assets thus exceeded liabilities by £308,178. The actual relation of liabilities to assets, so far as the English and local Banks are concerned, is shown as follows :—

1890.	English Banks.	Local Banks.
Assets in excess of liabilities	...	£616,171
Liabilities in excess of assets	£307,993	...

The following is a synopsis showing full particulars regarding assets and liabilities, together with comparisons with the former year 1889, and with the first year of the last decade :—

ASSETS.—NUMERICAL.

	1890.	1889.	1880.	1890 Compared with 1889. Increase.	1890 Compared with 1889. Decrease.	1890 Compared with 1880. Increase.	1890 Compared with 1880. Decrease.
	£	£	£	£	£	£	£
Specie and Bullion	588,074	593,405	483,435	...	5331	104,639	...
Landed Property	110,706	111,751	40,857	...	1045	69,849	...
Balance due from other Banks	237,621	414,475	82,211	...	176,854	155,410	...
Debts due to Banks	3,775,147	3,342,891	1,608,484	432,256	...	2,166,663	...
	4,711,548	4,462,522	2,214,987	249,026	...	2,496,561	...
	CENTESIMAL.						
Specie and Bullion	12·48	13·30	21·81	...	·93	12·14	...
Landed Property	2·35	2·51	1·85	...	·94	172·5	...
Balance due from other Banks	5·04	9·29	3·70	...	42·67	189·1	...
Debts due to Banks	80·13	74·90	72·64	12·93	...	134·6	...
	100·00	100·00	100·00	5·58	...	112·7	...

LIABILITIES.—NUMERICAL.

Notes in circulation	159,549	158,759	122,442	790	...	37,107	...
Bills in circulation	74,440	87,545	5441	...	13,105	68,999	...
Balance due to other Banks	19,397	16,252	14,672	3145	...	4725	...
Deposits	4,158,708	3,958,848	2,122,091	199,860	...	2,036,617	...
	4,412,094	4,221,404	2,264,646	190,690	...	2,147,448	...
	CENTESIMAL.						
Notes in circulation	3·62	3·77	5·39	·50	...	30·30	..
Bills in circulation	1·69	2·08	·26	...	14·97	1268·00	...
Balance due to other Banks	·43	·38	·66	19·35	...	32·20	...
Deposits	94·26	93·77	93·69	5·05	...	95·96	...
	100·00	100·00	100·00	4·52	...	94·83	...

* Since 1888 the averages of the year are given for comparison, formerly the figures for the last quarter were taken.

Commenting upon the relationships between the total assets and liabilities of different years is comparatively of very little value, as the accounts respecting English banks do not profess to give the full extent of the proportion of assets and liabilities of their Tasmanian branches, but only such part as these banks find it necessary to localise in Tasmania. It is noteworthy, however, that while the assets of local banks exceed their liabilities by 20·70 per cent., the local assets of foreign banks are 20·06 per cent under the local liabilities. On the whole it is shown, in respect of assets, that there is an absolute increase of £249,026, or 5·58 per cent., as compared with the previous year. The decrease is confined to specie and bullion. Since 1880 assets have increased 112·7 per cent. With respect to liabilities, there has been an increase of £190,690, or 4·52 per cent., as compared with the previous year. In Balance due to other Banks there has been an increase of 19·35 per cent. as compared with 1889.

The following Tables show the relative value of the various items of assets and liabilities during 1890, in the order of their importance. The corresponding percentages for the years 1889 and 1880 are also given for the purposes of comparison :—

ASSETS—Per cent. to Total.

	1890.	1889.	1880.
1. Debts due to Banks	80·13	74·90	72·64
2. Specie and Bullion	12·48	13·30	21·81
3. Balance due from other Banks	5·04	9·29	1·85
4. Landed property	2·35	2·51	3·70

LIABILITIES—Per cent. to Total.

	1890.	1889.	1880.
1. Deposits	94·26	93·77	93·69
2. Notes in circulation	3·62	3·77	5·39
3. Bills in circulation	1·69	2·08	·26
4. Balance due to other Banks	·43	·38	·66

Savings Banks.

The following is a statement with respect to the various Savings Banks in Tasmania during 1890, together with comparisons with the years 1880 and 1889 respectively :—

Savings Banks, 1880, 1889, 1890.

	Hobart Savings Bank.	Launceston Savings Bank.	Post Office Savings Bank.	All.
Depositors, 1880..... No.	7509	6011	...	13,520
Ditto, 1889 ..... No.	11,525	9481	3391	24,397
Ditto, 1890 ..... No.	11,647	9891	3786	25,324
Depositors' balances, 1880 ..... £	210,772	99,309	...	310,081
Ditto, 1889..... £	290,708	154,795	51,989	497,492
Ditto, 1890..... £	306,551	158,818	55,881	521,250
Average amount of each depositor's balance, 1880..... £	28 1 4	16 10 4	...	22 18 8
Ditto, 1889..... £	25 4 6	16 6 7	15 6 7	20 7 10
Ditto, 1890..... £	26 6 5	16 1 2	14 15 2	20 11 8

As compared with 1880, the year 1890, in respect of number of depositors, shows an increase of 11,804, or 87·30 per cent., and in respect of deposits, an increase of £211,169, or 70·13 per cent.

Similarly compared with the previous year 1889, in respect of number of depositors there is an increase of 927, or 3·80 per cent.; in respect of deposits there is an increase of £23,758, or 4·77 per cent. The average amount to credit of each depositor has slightly increased. The Post Office Savings Bank system was only initiated during the latter portion of the year 1882, since which time the progress has been very encouraging.

BANKING in Australasian Colonies 1890; also showing grand totals for the years 1882, 1886–90.

	BANKS OF ISSUE (Millions £).					SAVINGS BANKS.			
	Liabilities.		Assets.			No. of Depositors.	Amount of Depositors.	Amount of Deposits.	
	Deposits.	Total Liabilities.	Coin and Bullion.	Landed Property.	Total Assets.			Per Depositors.	Per Head of Population.
							£	£ s. d.	£ s. d.
New South Wales	35·5	37·2	5·7	1·7	52·5	143,826	4,730,469	32 17 10	4 4 4
Victoria	40·3	42·2	7·2	1·8	60·9	288,240	5,405,644	18 15 2	4 15 8
Queensland	10·4	11·2	2·4	·7	20·9	45,885	1,666,855	36 6 6	4 4 10
South Australia	7·2	7·8	1·4	·5	11·5	70,873	2,078,576	29 6 7	6 8 3
Western Australia	1·0	1·1	·3	·1	1·9	3,014	34,616	11 9 8	0 14 3
Tasmania	4·3	4·5	·6	·1	4·9	25,324	521,250	20 11 8	3 12 1
New Zealand	12·3	13·2	2·6	·5	17·8	97,208	2,441,876	25 2 5	3 18 0
Totals 1890	110·9	117·2	20·2	5·4	170·4	674,370	16,879,286	25 0 7	4 9 1
Totals 1889	106·3	112·4	18·5	5·1	163·2	631,173	15,475,437	24 10 4	4 1 9
Totals 1888	101·1	109·1	17·9	4·7	154·4	...	...	...	...
Totals 1887	93·9	101·2	18·2	4·2	139·5	..	...	...	...
Totals 1886	86·3	94·8	14·8	3·8	133·2	...	...	...	...
Totals 1882	68·8	71·9	11·0	2·7	102·7	...	...	...	...

Property Valuation.

The following abstract gives particulars of the steadily increasing value of property during the last ten years :—

PROPERTY Valuation—Decennial Return.

Year.	Municipalities Hobart and Launceston.	Rural Municipalities.	Police Districts.	TOTALS.
	£	£	£	£
1880	195,484	373,312	136,236	705,032
1881	199,738	373,576	140,798	714,112
1882	211,389	375,199	158,832	745,420
1883	224,338	385,100	168,330	777,768
1884	259,735	389,314	188,867	837,916
1885	263,425	391,885	195,471	850,781
1886	272,631	381,235	194,407	848,273
1887	277,940	383,257	207,877	869,074
1888	286,033	382,719	223,191	891,943
1889 *	295,503	387,342	240, 812	923,657
1890 *	303,134	397,396	256,026	956,556

* The capital value of rateable property, according to revised return prepared by Mr. Butler on December 31st, 1889, is stated to be £21,386,848, and the assessed annual value £1,102,397. The same authority returns £21,602,773 as the capital value of property upon which the land tax was levied for 1890.

Thus, of property in Tasmania during 1890, 30·69 per cent. of the value was situated in the Municipalities of Hobart and Launceston; 43·39 per cent. in the Rural Municipalities,—*i.e.*, nearly one-half; and 25·92 per cent. was situated in the Police Districts.

Since the year 1880, the annual value of assessed property has increased 40·08 per cent. The order of the three subdivisions, as regards the largest relative increase, is given as follows :—

Percentage Increase since 1880.

1. Police Districts..... 87·92 per cent. increase.
2. Municipalities Hobart and Launceston.... 55·07 „ „
3. Rural Municipalities..... 14·78 „ „

It must be borne in mind, however, that Railway and Mining property do not appear in the valuation of assessed property. The former was stated to represent a capital value of £3,088,882, and the latter has been estimated to represent a capital of £2,500,000 in the year 1890.

Accumulated Wealth.

The determination of the exact wealth of a country, whether public or private, is a matter which is surrounded with many difficulties. There is especially the case as regards the majority of the Australasian Colonies, where there is no Income Tax to throw light upon the extent and sources of *Private Wealth*. As regards wealth contained in Government and local property, the difficulties are even greater, for in all the British Colonies the mere acreage of the vast amount of unalienated lands affords very little aid in determining their real *present* value, and it is also difficult to guage the capital value of a great part of public works and undertakings which, although not yielding

any revenue, indirectly add largely to all other forms of the capital wealth of a country. Another difficulty presenting itself to the statisticians, leading the incautious to many erroneous conclusions, is the common tendency to place too great stress upon results obtained by the aid of arbitrary determined values for unknown data.

Mr. Goschen's warnings in this respect are of much value, for he wisely affirms: "Given a great number of figures partially unknown, given unlimited power and discretion of selection, and given an enthusiast determined to prove his case, and I will not answer for the consequences;" and as an illustration of the illusion which may be possible by the array of masses of figures improperly used by a too eager advocate, the same writer points out, "the administrator of statistics is like a showman who is exhibiting certain figures. According as he throws light and shade upon the pictures which he exhibits, he can produce true or false impressions. Whole rows of figures he may throw into impenetrable shade, while others are at the same time brought into excessive prominnce, and thus, to the eye of the spectator much may be rendered invisible, and much may be distorted by exaggerated lights, which turn facts into caricatures."

Many estimates of the wealth of a community are fairly open to such charges, especially so when used for the purposes of discussing comparative wealth in different places or times without sufficient attention to the variability of the data.

Notwithstanding these difficulties and dangers, the importance of ascertaining, however roughly, some estimate of the progress of a country demands that an attempt should be made to gauge the wealth of a community at different periods, and to measure the rate of its progress by the light of the experience of other countries similarly conditioned.

Private Wealth.

Where statistics relating to income are not available for ascertaining the capital amount of the private wealth of the community, it has been ascertained that a fair approximate of its amount is revealed indirectly by the amount of property left by persons dying. If the period be broad enough, it has been shown that the division of the total amount of property left by persons dying by the total number of deaths within the period would somewhat correspond with the average wealth *per head* of the total living population, provided there is no abnormal falling in of lives representing a very large amount of capital. The amount sworn under each year in connection with Probates and Letters of Administration is the only means for ascertaining the extent of property left by deceased persons. It is unfortunate, however, that the laws relating to succession duties differ widely in different countries. In Tasmania, for example, the major part of private wealth (real estate) is not subject to duty, and forms no part of the property sworn under Probates and Letters of Administration. In all the other colonies of Australia (Western Australia excepted*) real estate is included. Comparisons between different countries cannot be correctly made under such circumstances unless due allowance be made for the varying conditions.

Besides, it must be borne in mind that in most countries any property under a given limit—usually £100—is exempt from duty, and as this may represent a very considerable amount as regards the great mass of the population, it mars to some extent the value of this index to the general wealth.

So long, however, as comparisons between different times or places are formed exactly by the same method and upon similar data, the relative or com-

* There are no succession duties in this Colony.

parative results may be taken as approximately true, even though the data be somewhat imperfect. This is borne out by a statistician of great distinction (Dr. Giffen), who has affirmed that, "According to a well known statistical experience, the comparison of the growth or increment may be reasonably successful if *the same method is followed on each occasion* in working out the data for the comparison, although these data themselves may be unavoidably incomplete." Accordingly, it may be taken with some confidence that the estimate of private wealth in Tasmania for the various successive periods shown in the following table is fairly accurate as showing the progress and relative values of the wealth of the different periods, even if incomplete in themselves absolutely; the capital value of real estate in each case prior to 1889 being computed for 21 years' purchase of the ascertained annual value of rateable real estate, and the capital value of personal property is based upon the ascertained amounts as sworn to under Probates and Letters of Administration.

Comparative Merits and Defects of Different Methods adopted for Estimating the Wealth of a Country.

Statisticians have long been accustomed to use two very different methods for arriving at approximate values with respect to the wealth of a country, viz., the Direct or Synthetic Method, and the Indirect or Deductive Method. The Direct Method proceeds, synthetically, by calculating as closely as possible all the elements which combine to form the values of the principal divisions of wealth in a community such as are shown by the estimates of various countries in the following summary taken from tables prepared by Mulhall, Coghlan, and others :—

WEALTH of Various Countries estimated by various Authorities.

	United Kingdom, 1888 *a*	France, 1888 *a*	United States, 1890 *b*	Canada, 1888 *a*	Australasia, 1888 *a*	Australasia, 1890 *c*	United Kingdom, 1888 *d*
Lands, houses, &c.	3968	4392	5626	409	772	821	3618
Live stock	414	541	871	80	67	120	†
Railways	865	532	1457	151	94	*	1008
Shipping	134	15	†	†	†	7	
Productions	...	...	2396	†	†	35	2591
Merchandise	343	155	...	21	65	51	
Personal Property	...	...	1521	†	†	63	
Furniture	1212	852	†	64	120	...	960
Bullion	124	300	444	†	†	34	†
Public Works, &c.	880	630	458	†	†	*	†
Mines	...	...	123	†	†	38	...
Foreign Loans, &c.	1460	...	646	†	†	*	500
Public Land Buildings	...	...	208	†	...	*	500
Sundries	...	1143	...	255	255	†	860
	9400	8560	13,750	980	1373	1169	10,037

a Mulhall. *b* McCarty. *c* Coghlan. *d* Giffen.
† Included elsewhere. * Excluded from the estimate altogether.

The merits of the direct or synthetic method are that the constituents composing the wealth may be compared with the data more or less perfectly

ascertainable, and it affords, therefore, more precise information regarding the amounts and proportions of different elements of which the total wealth is composed. Errors and omissions also, by this method, are more readily traced, and may be easily modified in accordance with more precise forms of comparison.

The danger of making comparisons with different countries by adopting incautiously figures obtained in this way, however, is very considerable, as scarcely two authorities agree either in the forms of wealth, which they include or exclude in the figures represented by them as forming the total wealth of the particular country. Some authorities—Mr. Coghlan for example, in one of his tables—only attempt to gauge the private wealth of the country, and accordingly exclude Public Lands, Buildings, Railways, and Public Works; others (*e.g.*, Mulhall & McCarty) include all such elements, as they desire to gauge the extent of the wealth of the country, whether public or private; and hence we are sometimes apt to be misled by comparisons of mere totals or rates per head if we are not aware of the nature of the elements included in them. Part of the £204 millions of difference between Mulhall and Coghlan is accounted for in this way in respect of their estimates of the wealth of Australasia: Mulhall's estimate for 1888 being £204 millions in excess of Coghlan's for 1890, two years later.

The personal equation error of the Statistician is also another fertile source for producing widely different results by the direct method, even where the same elements are included. For if the root factors (prices or rates per unit), however carefully fixed, vary in the slightest degree, the slight root difference swells into very important figures when multiplied by tens of millions, and lack of local knowledge or a slight bias apart from differences in judgment often affords room for considerably different values for root factors. One of the most formidable difficulties under the direct method, however, is to gauge for different countries the value of its *Merchandise and other movable products* in the raw or manufactured state not yet purchased for consumption or final use within the country. Few countries, if any, possess statistical data to determine this important element of a country's wealth directly, and here at least the direct method breaks down completely. In a young country mainly engaged in the production of raw products for foreign markets the difficulties are not so formidable, but in manufacturing countries if the attempt were made it is almost certain that the same raw product would be reckoned several times. For example, it is very probable that where the three following industries—pig iron, malleable iron, iron ship building—form important branches of trade that the value of the second, if stated would include the former, and the third would include the value of the whole three. If the Statistician again independently reckoned the values of the products separately, the value of the raw products would be included three-fold, and the unfinished stage of the product two-fold. This process would be greatly intensified if the output of coal and ironstone mines used in iron manufacture were also aggregated with the former in estimates of the total value of a country's products.

VALUE of Food and Beverages locally Produced and forming part of External Trade contrasted with Value of Total External Trade in the United Kingdom and the United States respectively.

	United Kingdom, 1889.			United States, 1890.		
	Amount. Millions £.	Per cent. to Local Production of Food and Beverages.	Per cent. to Total External Trade.	Amount. Millions £.	Per cent. to Local Production of Food and Beverages.	Per cent. to Total External Trade.
Local production of Food and Beverages*	204·1	100·00	30·17	606·1	100·00	178·00
Local consumption of „ „ „	353·0	173·0	52·2	588·0	97·3	172·7
Total External Trade	676·5	331·4	100·00	340·5	56·17	100·00
Food and Beverages in External Trade	165·7	81·18	24·48	127·1	20·97	37·33
Value of Total Merchandise according to Mulhall's Method	338·0	145·6	50·00	170·0	28·0	50·0

* Estimated on a common basis for both countries.

Mulhall, in estimating the merchandise of a country at 50 per cent. of its foreign trade, only values the total merchandise of the United States at about half the amount set down for the United Kingdom. This is obviously wrong, seeing that the local consumption of Food and Beverages in the United States is about 67 per cent. greater than in the United Kingdom, and recognising also that the same articles of Food and Beverages in the latter country represents as much as 52·2 per cent. of her total external trade. Evidently it has been overlooked that the proportion of the total trade of a country represented by its external or foreign trade varies with each country in accordance with the sufficiency or lack of sufficiency of local sources for the supply of local requirements. A large foreign trade, due mainly to deficiencies of local resources, is therefore the worst possible index of the comparative value of either the total merchandise of a country or of the wealth of its inhabitants. In truth, as ably pointed out by Dr. Giffen, the volume of the foreign trade of a country, broadly speaking, largely depends upon the area of local interchange, being at a maximum with a very small area and a large population, and tending to zero as the area of interchange is enlarged. Mulhall and others simply evade this difficulty by giving up the principle of the direct method in this particular, and by trying to gauge the value of industrial products and merchandise of a country not otherwise estimated by reference to the total value of the imports and exports,—*i.e.*, to the external trade of the particular country.

But, unfortunately, the products consumed and utilised or the total merchandise of any country cannot be remotely inferred by reference to the volume of external trade. Both the absolute volume, as well as the proportion which external trade bears to internal, is as divergent as the poles for different countries. Generally, where the external trade of a country is abnormally great in relation to Home production, or to countries having a greater population, it is mainly due to the imperfection of local sources in supplying its principal wants—food and clothing—and not to the greater productive power or wealth of the country showing the greatest amount of

external trade. This conclusion is supported by the following facts relating to Home production, Home consumption, and foreign trade of the principal articles of Food and Beverage in the United Kingdom and the United States :—

Thus, the aggregate external trade of the seven separate Colonies of Australasia amounted to £132,596,450 for 1890, but if these formed a common wealth in the same year, as it has been proposed to do, like Canada or the United States, the total external trade would be reduced by £57,451,631, or a reduction of 43·30 per cent. or £15 15*s.* per head of the population without affecting the totality of trade. Similarly, if the United Kingdom and the United States of America were combined in the same way, the aggregate external trade of these countries would be reduced by £144 millions without affecting the totality of their trade in any degree. The value of the external trade of a country as a basis for estimating the total value of its merchandise has therefore been shown to be altogether unreliable.

The indirect or deductive method for arriving at an approximate of the total private wealth of a country by means of Probates has already been commented upon. It has the advantage of simplicity, but, inasmuch as the laws differ in various countries in respect of the kinds of private wealth subject to succession duties, its results are often very wide of the truth whether regarded absolutely or comparatively. It has also the disadvantage of being disturbed by the falling in of abnormally large estates, and by other circumstances as pointed out in an admirable way by Mr. Coghlan.

The disturbance from such causes, however, might be largely reduced if rates per head were based upon ten instead of five yearly averages, as already suggested. In any case the results by either method can only be regarded as rough approximates, and should be used with extreme caution where the calculations by the two methods show widely divergent figures.

Estimated Capital Value of Personal Property based on Probates and Letters of Administration.

Year.	Population.	No. Total Deaths.	Estates left by Deceased Persons.					Estimated Capital Value of the Personal Wealth of the Population, calculated on the average of the five previous years.		Calculated on the average of column.
			No.	Amount.	Amount per Estate.	Per cent. of Estate to Total Deaths.	Amount of Estates per total deaths. Particular year.	Mean of five previous years.	Million	
				£4	£		£	£	£	£
1881.....	118,113	1733	174	302,981	1741	10·04	174·8	150·7	17·92	15·26
1882.....	120,834	1909	182	171,375	942	9·53	89·8	146·8	17·74	15·61
1883.....	123,630	2122	165	172,348	1045	7·78	81·2	131·4	16·25	15·96
1884.....	127,054	1990	266	264,371	994	13·37	132·8	122·2	15·53	16·41
1885.....	129,267	2036	223	249,284	1118	10·95	122·4	118·5	15·32	16·70
1886.....	131,616	1976	246	219,457	892	12·45	111·1	107·4	14·14	17·00
1887.....	138,988	2161	240	283,923	1237	11·11	131·4	115·5	15·71	17·57
1888.....	138,346	2036	249	241,059	968	12·23	118·4	123·3	17·06	17·87
1889.....	142,177	2098	225	296,747	1319	10·73	141·4	125·2	17·80	18·37
1890.....	145,290	2118	262	528,291	2016	12·37	249·4	151·1	21·95	18·77
Total.....	1,315,315	20,179	2232	2,729,836	—	—	—	—	—	—
Average....	131,531·5	2017·9	223·2	272,983·6	1171	11·06	135·3	129·2	—	—

It will be seen from the above analysis that there is considerable variation in the amount of estates relative to the total deaths in any particular year, and hence it has been usual hitherto among statisticians to broaden the base for making calculations by taking the average amount of the five preceding years. The falling-in of abnormally large estates in the last two years, in several other Colonies as well as Tasmania, however, demonstrates that the average of five years is far too narrow a base to produce satisfactory results by this method, and accordingly the estimate in the last column is based on the average of the five-yearly means for the last ten years; and although Mr. Coghlan, in a very admirable paper read before the Members of the Association for the Advancement of Science at Hobart in January, 1892, has shown that the method cannot be relied upon for giving accurate results for some of the Australian Colonies—notably Queensland and South Australia—it appears that the results for this Colony approximate very closely to the truth.

Combining the results given in previous table with the Capital Value of Real Estate as ascertained by Assessment, we ascertain the approximate value of the Private Wealth of the Colony as shown in the following table :—

PRIVATE Wealth and Public Debt of Tasmania 1881–90.

YEAR.	PRIVATE WEALTH.			PUBLIC DEBT.	PRIVATE WEALTH.	
	Personalty.	Real Estate.	Total.		Per Cent. to Debt.	Per Head of Population.
	Million £.	Million £.	Million £.	£	Per Cent.	£
1881	15·26	15·00	30·26	2,003,000	6·62	256
1882	15·61	15·65	31·36	2,050,600	6·54	260
1883	15·96	16·33	32·29	2,385,600	7·62	261
1884	16·41	17·60	34·01	3,202,300	9·42	268
1885	16·70	17·86	34·56	3,357,000	9·71	267
1886	17·01	17·81	34·82	4,026,720	11·56	265
1887	17·57	18·25	35·82	4,109,370	11·47	263
1888	17·87	19·53	37·40	4,499,470	12·03	270
1889	18·37	21·39	39·76	5,019,050	12·62	280
1890	18·77	21·60	40·37	6,432,800	15·93	278

If we examine the figures in the preceding tables, relating to the development of private wealth in Tasmania, it will be observed that in a period of ten years private wealth has increased by £10·11 millions, or 33·41 per cent., a most satisfactory advance, while the Public Debt—representing Public Works and undertakings, viz., Railways, Telegraphs, Roads, Harbours, &c.—altogether outside of private wealth—has increased by £4,429,800. It also appears that the total Public Debt of the Colony in 1890 bears the proportion of 15·93 per cent. of its private wealth, and that this proportion closely agrees with the average of the proportion of the seven Australasian Colonies for the same year.

Public Wealth.

Independently of the forty millions of private wealth in Tasmania, there is the public wealth represented by its unalienated lands (twelve million acres), mines, forests, and fisheries, which cannot be set down at a lower figure than twelve millions. The property of the Local and General Government in Railways, Telegraphs, Buildings, Public Works, &c. may represent nearly a sum of seven million pounds.

Altogether it would appear, as in the following summary, that the public and private wealth of Tasmania represents about sixty million sterling, thus:—

	Million £.	Per head.	Ratio of Public Debt to Wealth per cent.
Public Wealth	19	131	33·8
Private Wealth	40	278	15·9
Total Wealth...	59	409	10·9

Private Wealth in Australasian Colonies.

The details from which the aggregate wealth can be computed are not available for some of the Colonies; but an estimate has been made by Mr. Coghlan, the Government Statistician of New South Wales, which is believed to be comparatively of some value. The figures for Tasmania are, however, independently computed from local data as shown in the previous table.

PRIVATE Wealth Australasian Colonies, Year 1890.

Colony.	Private Wealth.		Ratio of Public Debt to Private Wealth.
	Total.	Per Inhabitant.	
	Million £	£	Per cent.
New South Wales	412·48	368	11·77
Victoria	344·22*	304	12·02
New Zealand	150·19	240	24·87
Queensland	118·41	301	23·73
South Australia	99·14	310	20·58
Tasmania	40·37	278	15·94
Western Australia	10·62	218	12·87
	1175·43	310	15·61

* Mr. Hayter's estimate, based upon the results of the averages of the quinquennial period during which abnormally large estates have fallen in, represents the private wealth of Victoria for 1885-90 to be £407 millions.

Private Wealth of various Countries.

In the following table the Private Wealth, Debt, and Taxation of principal countries in Europe and America are contrasted with corresponding figures relating to the various Colonies of Australasia; and it would seem that, although the total amount of private wealth of the latter is insignificant when compared with Europe and America, yet it is remarkable that, relative to population, it should be so very much higher,—being £197, or 152 per cent., above the average of European countries. If the moneys expended on railways and other Public Works were added to the private wealth of Australia, it would represent nearly 1418 millions, or £374 per head. This would lower the rates of Public Debt from 14·86 to 12·90 per cent. of total wealth.

It will be seen, therefore, that the Public Debt of these Colonies bears a small proportion to public and private wealth. Of necessity, in young

Colonies the State undertakes many functions left to private enterprise in older countries. For example, the greater part of the money standing as a Public Debt against the Australasian Colonies has been expended on Roads, Bridges, Telegraphs, and Railways, and instead of being a burden its amount should really be regarded as an index to the enhanced value of the public and private wealth of the country.

In the United Kingdom the paid-up capital of Railways belonging to private companies amounts to £897,472,026. If this sum, together with Debt of Local Government for Public Works, (the equivalent of which is always the large item of colonial debts) were added to the National Debt of the United Kingdom it would be more than doubled, for it would amount to £2,045,000,000 = £54·6 per head of population, or about £6·6 per head above the average of the Australasian Colonies; and this would represent 21·76 per cent. of her total wealth, whereas the total debt of Australasia only represents as shown 12·90 per cent. of her total wealth. There are many fallacies, therefore, which unskilled persons are apt to fall into in comparing the financial conditions of young Colonies if such considerations are not kept prominently before the mind.

Broadly speaking, European national debts are indicies of the waste of war or of other national calamities. In Australian Colonies, on the contrary, the Public Debt per square mile is a fairly correct index of the energy displayed by the particular Colony in opening and improving its virgin lands for agricultural, pastoral, and mining purposes.

WEALTH of Various Countries.

	Wealth.*		Ratio of Public Debt to Wealth.
	Total.	Per Inhabitant.	
Europe (1888)—	Million £	£	
United Kingdom	9400	247	7·7
France	8598	224	14·7
Germany	6437	140	6·8
Russia	5089	55	14·8
Austria	3855	99	15·0
Italy	2963	100	15·5
Spain	2516	148	10·3
Portugal	408	87	27·5
Sweden	637	125	2·2
Norway	243	122	
Denmark	404	230	2·8
Holland	980	216	9·1
Belgium	1007	167	7·6
Switzerland	494	165	3·5
Roumania	593	110	6·1
Servia	217	108	6·0
Greece	300	162	7·7
Bulgaria	205	70	..
Turkey	593	120	30·3
EUROPE	45,539	130	11·2
America—			
United States (1890) [a]	13,750	219	1·7
Canada (1888)	980	196	5·0
Argentine (1888)	509	125	21·6
Africa—			
Cape Colony (1888)	135	130	20·0
Australasia (1890)—			
New South Wales[b]	412·48	368	11·77
Victoria[c]	407·28	359	10·16
New Zealand[b]	150·19	240	24·87
Queensland[b]	118·41	301	23·73
South Australia[b]	99·14	310	20·58
Tasmania[d]	40·37	278	15·94
Western Australia[b]	10·62	218	12·87
AUSTRALASIA	1238·49	327	14·86

* Excepting where otherwise indicated the figures are taken from Mulhall's Dictionary of Statistics, p. 389. [a] M'Carty's Annual Statistician, 1891. [b] Coglan's Wealth of Australasia (paper read before the Members of the Australasian Ass. for Adv. of Science, Hobart, 1892). [c] Hayter's Year Book, 1890–91. [d] Based upon independent calculations made by compiler.

Income of the Tasmanian People.

In the absence of an Income Tax it is difficult to arrive at a satisfactory estimate of the yearly income of the people. But if we bear in mind that wages in these colonies are about 75 per cent. above the average in the United Kingdom, where the average income has been ascertained to be equal to £36

per head of population, or £80 per breadwinner, the estimate of £52 per head of population for New South Wales, as originally accepted by Mr. Coghlan for that colony, cannot be far wide of the truth, and would represent £117 per breadwinner.

It must be borne in mind that a much smaller proportion of the earnings of the people is derived from capital investments than from salaries and wages; and as the former is divided among from 9 to 12 per cent. of the breadwinners, the amount per head for this class is on the average at least twice as much. It follows, therefore, that the mean of all earnings *per head* must be considerably greater than the mean of salary and wages classes alone.

The Civil Service of Tasmania is a very fair example of the salaries and wages classes generally. It embraces in its Public Works, Railways, Workshops, Printing Office, and other departments, nearly all the principal branches of skilled and ordinary labour. From the analyses of the Estimates of the last two years it is found that the mean yearly rate per year of all salaries and wages, high and low, amounts to about £100 per head. If it be assumed that the salaries and wages class represent, say 90 per cent. of all breadwinners, and that the average earnings of the remaining 10 per cent. capitalists are only 200 per cent. per head greater than the salary and wages class—this would be equivalent to about £51 per head of the population, or a total of £7,480,017 for all incomes in respect of 61,411 breadwinners in the year 1891.

Where there is no Income Tax it is almost impossible to ascertain the distribution of incomes. The references to other countries where an Income Tax is levied is apt to mislead, for both the distribution and the aggregate income vary as widely as the local natural sources of wealth and the prevailing forms of industry. The analyses of assessed incomes at different times in the three great divisions of the United Kingdom, although of some value as regards distribution of wealth, show great differences in the ratios, thus :—

PROPORTION of Assessed Incomes in relation to the Gross Income of the people in the United Kingdom.

YEAR 1867.

	Breadwinners. (Percentage.)			Gross Income. (Percentage.)		
	For Incomes below £100.	For Incomes above £100.*	All.	For Incomes below £100.	For Incomes above £100.*	All.
England and Wales	89·3	10·7	100	47·5	52·5	100
Scotland	91·7	8·3	100	53·2	46·8	100
Ireland.....	96·1	3·9	100	66·3	33·7	100
United Kingdom	90·8	9·2	100	49·8	51·2	100

* Incomes under £100 exempt from duty.

PROPORTION of Assessed Incomes—*continued.*

YEAR 1877.

	Breadwinners. (Percentage.)			Gross Income. (Percentage.)		
	For Incomes below £150.	For Incomes above £150.	All.	For Incomes below £150.	For Incomes above £150.	All.
England and Wales	97·31	2·69	100	54·2	45·8	100
Scotland	98·12	1·88	100	55·0	45·0	100
Ireland.....	99·34	0·66	100	54·5	45·5	100
United Kingdom	97·72	2·28	100	54·3	45·7	100

* Incomes under £150 exempt from duty.

The above tables show that, as regards the year 1867, 51·2 per cent. of all incomes over £100 was absorbed by 9·2 per cent. of the breadwinners; and as regards 1877, it appears that 45·7 per cent. of all incomes over £150 was absorbed by 2·28 per cent. of the breadwinners.

In the Australasian Colonies, however, the composition of the wealthy and industrial classes are altogether different, there being a smaller proportion of the lower industrial, or rather—owing to the richer natural sources of wealth—the larger proportion of the lower industrial of European countries are, by the improved local conditions, raised into the position of the higher industrial of older countries.

This is revealed by an unmistakable index of relative wealth—viz., the nominal rent value of the houses occupied by the various classes, and especially the proportions inhabiting houses over the rent value of £20 per year, and between £20 and £80. The figures obtained by the last census in relation to dwellings enable us to make the following comparison, which may be taken as fairly exact :—

PROPORTION of the people inhabiting houses whose rental is—

	Under £20.	Between £20 & £80.	£80 and over.	All.
Great Britain.....	84·66	13·32	2·02	100
Victoria	63·96	34·04	2·00	100
Tasmania	65·21	32·56	2·23	100

No better index of the improved condition of the mass of the people of these Colonies could be given than that afforded by the above contrast, wherein it is shown that about 20 per cent. of the lower industrial, by improved local conditions, have been raised into the class next above them of Europe.

It is probable, therefore, in the division of the £7,480,017 (estimated as the value of the total income of the Tasmanian people), the proportion absorbing income over £150 would be very much higher than in the United Kingdom, and somewhat as follows :—

DISTRIBUTION of Income in Tasmania (Census 1891).

	Income under £150.	Income £150 & over.	Total.
Breadwinners, No.	53,428	7983	61,411
Per cent. ditto	87·0	13·0	100
Total income.....	£4,986,678	£2,493,339	£7,480,017
Ditto per cent.....	66·66	33·33	100
Ditto per breadwinner	£93·33	£312·3	£121·8
Ditto per head	£39·07	130·7	51·0

Income of Various Countries.

The comparison of the gross earnings of Australasia with the principal American and European Countries, as in the following table, throws up in a strong light the superior conditions of the masses of the people in the Colonies of Australasia.

GROSS Earnings in various Countries.

Country.	Total Earnings.	Earnings per Head.
Europe—	Million £	£
England and Wales	1084	37·9
United Kingdom.....	1285	33·7
Scotland	128	31·2
Holland.....	102	22·6
France	1046	27·8
Denmark	66	32·5
Belgium	167	28·0
Germany	1076	22·2
Austria	616	15·5
Sweden.....	104	22·0
Norway.....	41	20·5
Ireland	73	15·3
Switzerland	55	19·0
Spain.....	293	16·5
Portugal	55	12·1
Italy	363	12·2
Russia	975	11·5
Europe.....	6244	19·4
America—		
United States.....	2358	39·0
Canada	130	26·0
Argentine Republic	87	24·0
America.....	2575	27·0
Australasia—		
1. New South Wales.....	63	57
2. Tasmania	7·5	51
3. Australasia.....	195	51

Generally, therefore, it would appear that the average income per head in Australasia is about 25 per cent. above the highest in Europe, and 62 per cent. above its average. In relation to United States, the advantage is about 23·5 per cent. in favour of Australasia.

Mortgages registered.

	1890.		1889.		1880.	
	No.	Per cent. to Total.	No.	Per cent. to Total.	No.	Per cent. to Total.
Under the old system.....	425	31·76	716	46·43	421	57·36
Under Real Property Act...	913	68·24	826	53·57	313	42·64
TOTAL.....	1338	100·00	1542	100·00	734	100·00
	£	Per cent. to Total.	£	Per cent. to Total.	£	Per cent. to Total.
Under the old system.....	417,567	55·65	635,653	62·73	246,414	65·96
Under Real Property Act...	332,824	44·35	377,681	37·27	127,148	34·04
TOTAL.....	750,391	100·00	1,013,334	100·00	373,562	100·00

CHAPTER XII.

Finance.

THE tables as grouped under this Part are intended to give a clear and comprehensive view of the Finances of the Government of the Colony, whether General or Local, and for convenience they have also been arranged according to the following subdivisions :—

I. Finances relating to General Government.
II. Finances relating to Local Government.
III. Finances relating to General, Local, and Imperial Government.

The first subdivision relates chiefly to Treasury and Departmental Receipts and Expenditure in connection with general purposes ; the second subdivision relates to the Revenue and Expenditure of local bodies such as Road Trusts, Municipalities, Marine Boards, and such like, which have the power to levy taxes for local purposes ; and the third subdivision deals with the aggregates of such matters as are common to both General and Local Government. It is requisite that the matters relating to General and Local Government should be studied together, inasmuch as certain functions of the State are at one time placed under the control of the General Government, and at another time these same functions may be distributed under the control of several local bodies. In the Australasian Colonies, too, for the most part, certain functions, such as the construction and maintenance of railways, are managed by the State. In other countries these functions are carried out only to a limited extent by the General Government, or they may

be left altogether to private enterprise, as is the case in England. In comparisons made at different times, and with different countries, it is necessary to have these considerations exactly determined.

I. Finances relating to General Government.

There has been considerable difficulty in dealing with the financial statement in respect of any one year until a period of one clear year had elapsed after the close of the nominal period. This was especially the case in respect of Expenditure, because until recently the law determined that all moneys provided and authorised to be expended in respect of any one year should be actually drawn upon up to the 31st December of the following year, and charged to the account of the year in which the particular expenditure was authorised, and not against the year in which they were disbursed by the Treasury. In the amended law, framed during the Session 1886, all votes in respect of any financial year, if not appropriated within two months after its close, lapse. Receipts and expenditure in connection with Loans Accounts are final, as the moneys are taken to account according to the actual date of Treasury receipts and disbursements.

Finance Account (made up to 24th July, 1891.)

The following is an abstract of the Honorable the Treasurer's "Explanatory Statement," presented to Parliament on 24th July, 1891 :—

		Surplus.	Deficiency.
		£	£
Aggregate deficiency, 1st Jan., 1890.....		...	167,469
Year ending 31st Dec., 1890.			
Revenue.....	£753,305	...	...
Expenditure	718,604	...	34,701
Aggregate deficiency, 1st January, 1891.....		...	132,768
Year 1891.			
Re-estimated Revenue.....	£884,592	...	...
Re-estimated Expenditure ...	849,508	35,084	...
Year 1892.			
Estimated Revenue	£910,067	...	...
Estimated Expenditure	889,630	20,437	...
			55,521
Estimated deficiency on 31st December, 1892.....	...	...	£77,247

From this statement it also appears that during the years 1890 and 1891 the Revenue has shown such a marked improvement as compared with the previous two or three years that the Treasurer has anticipated the Revenue in 1891 would exceed Expenditure by £35,084, and for the year 1892 it is also anticipated that the Revenue will exceed Expenditure by £20,437.

If these estimates are realised, the deficiency of £147,469 commencing the year 1890 will be reduced by £90,222, or to a sum of £77,247.

The causes affecting the Finances of the Colony are more fully dealt with in the following analyses :—

General Revenue.

The General Revenue for the year 1890, including Scab Act Fund, amounts to £722,746. This sum shows an increase as compared with the previous year of £79,191, or 11·66 per cent, and exceeds the actual expenditure of the year by £35,354.

The following table shows more particularly the sources of Revenue, together with comparisons under each principal head with the preceding year and with the last year of the decade :—

SOURCES OF REVENUE.	1890.	1889.	1880.	Year 1890 as compared with—			
				1889.		1880.	
				Increase.	Decrease.	Increase.	Decrease.
			NUMERICAL.				
Taxation.	£	£	£	£	£	£	£
Customs	329,067	307,352	217,717	21,715	...	111,350	...
Beer, Land, and Dividend Taxes	67,566	67,632	42,631	...	66	24,935	...
Other Taxes	57,798	47,659	39,893	10,139	...	17,905	...
Total Taxation	454,431	422,643	300,241	31,788	...	154,190	...
Special Public Services.							
Railways, Post Office, Telegraphs, &c.	187,547	148,141	63,705	39,406	...	123,842	...
From Buildings, Land, and Public Investments.							
Rents, Sales, &c.	93,741	95,254	56,312	...	1513	37,429	...
From other sources.							
Miscellaneous	22,381	12,871	21,900	9510	...	481	...
Total Revenue	758,100	678,909	442,158	79,191	...	315,942	...
Taxation	59·94	62·25	67·90	7·52	...	51·36	...
Special Public Services	24·74	21·82	14·41	26·60	...	194·40	...
From Buildings, Land, and Public Investments	12·37	14·03	12·74	...	1·59	66·47	...
From other sources	2·95	1·90	4·95	73·86	...	2·20	...
TOTAL	100·00	100·00	100·00	11·66	...	71·46	...

In order that a clearer insight may be obtained as regards the various items affecting the principal sources of Revenue, the following comparative table has been prepared :—

IMPORTS and Duties collected 1889 and 1890 compared.

	IMPORTS (value).			DUTY COLLECTED.		
	1890.	**1889.**	**1890.** +Increase. —Decrease.	**1890.**	**1889.**	**1890.** + Increase. — Decrease.
	£	£	£	£	£	£
Machines, Tools, and Implements	209,172	174,599	+ 34,573	13,960	12,337	+ 1623
Other Art and Mechanic Products	167,782	158,616	+ 9166	16,888	17,179	— 291
Textile Fabrics and Dress	493,722	473,797	+ 19,925	55,849	54,255	+ 1594
Drink, exclusive of Excess Duties	63,396	54,133	+ 9263	82,859	72,560	+10,299
Tobacco	23,918	26,639	— 2721	46,118	44,994	+ 1124
Tea and other Stimulants	72,637	69,177	+ 3460	22,264	17,679	+ 4585
Sugar and other Food Products	236,583	222,938	+ 13,645	58,439	57,769	+ 670
Minerals and Metals	299,329	154,539	+ 144,790	8323	8292	+ 31
Raw Products, Animal & Vegetable	109,359	101,983	+ 7376	20,825	19,685	+ 1140
Live Stock	114,965	96,906	+ 18,059	...	...	...
Miscellaneous	106,649	77,708	+ 28,941	5466	5012	+ 454
	1,897,512	1,611,035	+ 286,477	330,991†	309,762*	+21,229‡

* Less Drawbacks, £307,352. † Less Drawbacks, £329,067. ‡ Increase, excluding Drawbacks, £21,715 or 7·07 per cent.

As compared with the previous year's revenue, there is an improvement under the following heads, viz. :—Minerals and Metals, £31 ; other Art and Mechanic Products, £1332; Raw Products, Animal and Vegetable, £1140; Textile Fabrics and Dress, £1594; Tobacco, £1124; Machines, Tools, and Implements, £1623; Miscellaneous, £1454; Sugar and other Food Products, £670; Tea and other Stimulants, £4585; Drinks, £10,299.

If attention be confined to Taxation *per se*, it will be seen that in the Australasian Colonies the greater portion (75·80 per cent.) is raised by way of Customs. The order of Colonies deriving the higher proportion of taxation from Customs is as follows :—

	Percentage of Taxation derived from Customs.			
	1887.	**1888.**	**1889.**	**1890.**
1. Western Australia	90·50	88·39	88·54	89·20
2. Queensland.....	81·08	85·22	88·67	82·55
3. South Australia.....	72·13	72·18	74·42	75·69
4. Victoria	77·83	76·62	95·15	73·21
5. Tasmania.....	72·98	73·37	72·72	72·42
6. New Zealand	67·86	68·45	70·49	70·66
7. New South Wales	75·50	70·21	71·19	68·70
All	...	...	...	73·32

It must be borne in mind, however, that in the Colonies there are few local distilleries, and hence it is that the proportion of revenue from Customs is unusually large as compared with countries whose revenue from spirits is principally derived by way of excise duty. The proportion of revenue derived from imported drink represents 25·03 per cent. of the Customs Revenue in Tasmania, as contrasted with 7·90 per cent. in the United Kingdom.

In Tasmania the Customs alone during the year 1890 contributed £329,067, or 43·41 per cent. of the total Revenue, as compared with £307,352, or 45·27 per cent., during 1889. The following table shows, for the years 1887 to 1890, to what extent the various classes of goods imported contributed towards the Customs revenue in Tasmania :—

	Per cent. to Total Customs.			
	1887.	**1888.**	**1889.**	**1890.**
Class I. Art and Mechanic Productions...	9·08	8·87	9·53	9·32
Class II. Textile Fabrics and Dress.....	15·58	16·82	17·51	16·87
Class III. Food, Drinks, &c.	63·79	64·22	62·31	63·35
Class IV. Animal and Vegetable Substances	7·20	6·09	6·35	6·29
Class V. Minerals and Metals	2·74	2·30	2·68	2·52
Class VI. Live Animals and Plants	—	—	—	—
Class VII. Miscellaneous and Indefinite.....	1·61	1·70	1·62	1·65
	100·00	100·00	100·00	100·00

Thus, Food, Drinks, and Textile Fabrics together contribute more than three-fourths—80·22 per cent.—of the whole revenue from Customs.

If we examine more closely the orders or subdivisions of classes of goods according to their importance as sources of revenue, we obtain the following result :—

ORDER of Subdivisions of Classes according to their importance as sources of Revenue.

	Per cent. to Total Customs Revenue.			
	1887.	**1888.**	**1889.**	**1890.**
1. Drink	23·45	23·36	23·42	25·03
2. Vegetable Food, including Sugar	18·46	18·48	18·65	17·26
3. Textile Fabrics and Dress	15·58	16·82	17·51	16·87
4. Tobacco	14·35	14·51	14·54	13·94
5. Stimulants not otherwise mentioned	7·22	6·44	5·70	6·73
6. Machines, Tools, Implements, &c.	4·27	4·37	3·98	4·22
7. Oils	2·99	3·30	3·34	3·43
8. Vegetable Substances, Raw Materials	2·69	1·68	2·35	2·10
9. Chemicals—includes Matches, Paints, &c.	1·95	1·88	2·32	1·84
10. Metals, other than Gold and Silver	0·08	0·10	—	—
11. All other articles	8·96	9·06	8·19	8·58
	100·00	100·00	100·00	100·00

The order of the greatest tax, relative to value, of 20 of the most highly taxed articles is given, as regards the year 1890, as follows : the figures for 1887, 1888, 1889, are also given for comparison.

	1887.	**1888.**	**1889.**	**1890.**
1. Tobacco	204·33	178·41	168·90	192·81
2. Drink	108·24	127·11	134·04	130·70
3. Oils	70·79	55·54	60·48	57·48
4. Various Stimulants, including Tea	35·49	27·39	25·56	30·65
5. Vegetable Food, including Sugar	24·94	26·54	27·35	25·71
6. Arms, Ammunition	27·03	15·68	23·34	20·23
7. Mean Value of all Articles	17·68	18·74	19·23	17·44
8. Animal Substances not Food	23·69	18·50	14·88	15·74
9. Building Materials	12·53	12·33	16·11	15·27
10. Furniture	10·33	11·34	11·81	12·63
11. Tackle for Sports and Games	10·00	10·62	12·48	12·43
12. Cotton and Flax Manufactures	10·00	11·35	12·47	12·41
13. Musical Instruments	9·19	11·30	11·86	11·94
14. Carriages, Harness, &c.	10·66	13·34	10·68	11·53
15. Textile Fabrics and Dress	9·72	10·82	11·45	11·31
16. Chemicals	8·72	10·07	12·43	10·12
17. Vegetable Substances not Food	11·11	9·27	10·25	9·47
18. Machines, Tools, and Implements	8·05	7·89	7·07	6·67
19. Stone, Clay, and Earthenware	14·98	13·65	13·99	1·43
20. Gold, Silver, Specie, and Precious Stones	11·00	6·75	15·19	1·40

This method of analysis is not only valuable in disclosing the percentage which duty bears to the absolute value of each article taxed, but changes of tariffs and their effects are also most clearly ascertained in this way.

It will be observed in the analysis of the last three tables that, as regards the year 1890, the relative order and extent of each particular article, class, or sub-class have not been materially disturbed as compared with the previous year. Drink still contributes the highest percentage (25·03) of the Customs Revenue, while tobacco maintains its position in being the most highly taxed of all imports relative to import value, viz., (192·81) per cent. As regards the last table, it may be observed that the inclusion of articles free of duty in the import values explains the variations from nominal fixed rates of duty within certain divisions.

General Expenditure.

The General Expenditure on account of the year 1890, made up to 28th February, 1891, including Interest on Loans, amounts to £722,746,* or a sum equal to £5 0*s.* 7*d.* per head of population. In order that the proportion of the expense of each separate function discharged by the General Government should be properly estimated, it is necessary to distribute the yearly interest paid on Loans against each function according to the extent and the direction in which the proceeds of the various Loans were applied. This has been carried out in Abstract of Expenditure, a synopis of which is here given :—

GENERAL Expenditure, 1890.

	1890.						1889.	
	Expenditure.		Total.	Per cent. to Total.	Amount per Head.†		Amount per Head.†	
	Direct Charges.	Interest on Loans*						
	£	£	£		*s.*	*d.*	*s.*	*d.*
General Administration	71,025	...	71,025	9·83	9	11	9	4
Law and Protection	68,027	4137	72,164	9·99	10	0	9	10
Religion, Science, and Education	42,744	7582	50,326	6·96	7	0	6	9
Hospitals, Charitable Institutions, &c.	54,034	...	54,034	7·48	7	6	7	6
Special Public Works and Services—								
Railways (construction & maintenance)	85,802	137,615*	223,417	30·91	31	1	23	2
Post Office (ditto)	46,137	...	46,137	6·38	6	5	6	0
Telegraphs (ditto)	21,617	3534	25,151	3·48	3	6	3	4
Stock Inspection	4142	...	4142	0·57	0	7	0	3
Lands, Mines, Works, Surveys, and control	25,237	...	25,237	3·49	3	6	3	5
Roads, Bridges, Buildings construction	49,351	75,885	125,236	17·27	17	6	17	6
Immigration	153	8119	8272	1·14	1	2	1	4
Various Special Services	6401	11,204	17,605	2·44	2	5	3	2
Total Special Public Works and Services	238,840	236,357*	475,197	65·74	66	2	58	2
Grand Total	474,670	248,076*	722,746	100·00	100	7	91	7

* Including £24,425 Guarantee to T.M.L. Ry. Coy.
† Including the proportion chargeable for interest on Loans.

It would appear from this table that the order of the more costly functions of the General Government for the year 1890 are as shown hereafter. The corresponding figures for 1887, 1888, and 1889 are also given for purposes of comparison :—

	Per cent. to Total Expenditure.			
	1890.	**1889.**	**1888.**	**1887.**
1. Special Public Works	65·74	63·53	63·43	63·19
2. Law and Protection	9·99	10·70	10·82	10·72
3. General Administration	9·83	10·24	10·58	10·07
4. Hospitals, Charitable Institutions,&c.	7·48	8·15	8·30	9·14
5. Religion, Science, and Education.....	6·96	7·38	6·87	6·88

With regard to the first item, it is desirable to point out that the revenue derived from Public Services should be placed as a set-off against the expenditure under this head, the amount of which for 1890—£187,547—would materially reduce the relative cost of Special Public Works and Services. For example : although the service for Railways, Telegraphs, and Post Offices for the year costs a sum equal to £2 1*s.* 0*d.* per head of population, or 47·77 per cent. of the total expenditure for the year, yet the revenue from these sources is gradually increasing, and for the year 1890 represented £1 2*s.* 7*d.* per head of population,—*i.e.*, already it amounts to 55·11 per cent. of the total expenditure in connection with such services.

The information necessary for distributing the interest on loans prior to 1882 is not available, and the comparison with former years is based upon the classification which regards interest as a separate item of expenditure, irrespective of the functions or service against which it more properly belongs as a charge.

Accordingly, the following synopsis shows the expenditure for the year 1890 under various heads, in comparison with the years 1880 and 1889 :—

EXPENDITURE, 1890, 1889, and 1880, compared.

NUMERICAL.

	Expenditure.			**1890.** Increase or Decrease as compared with—	
	1890.	**1889.**	**1880.**	**1889.**	**1880.**
	£	£	£	£	£
General Administration *	71,024	69,790	47,003	+ 1234	+ 24,021
Law and Protection *	68,027	67,931	51,605	+ 96	+ 16,422
Religion, Education, and Science	42,745	41,192	25,468	+ 1553	+ 17,277
Hospitals, Charitable Institutions, &c.....	54,034	55,602	45,657	— 1568	+ 8377
Special Public Works and Services *.....	263,264	237,422	147,861	+ 25,842	+ 115,403
Interest	223,652	209,737	97,602	+ 13,915	+ 126,050
TOTAL	722,746	681,674	415,196	+ 41,072	+ 307,550
	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
Per head	5 0 7	4 11 7	3 13 1	+ 0 9 0	+ 1 7 6

* Owing to the mode of distributing miscellaneous expenditure prior to 1882, the figures for 1880, under General Administration and Law and Protection, are relieved of certain charges, while the converse of this applies to Special Public Works and Services for the same year. The differences, however, are not material as regards comparison.

EXPENDITURE, 1890, 1889, and 1880, compared—*continued.*

CENTESIMAL.

	Expenditure.		
	1890.	**1889.**	**1880.**
General Administration *	9·83	10·25	11·32
Law and Protection *	9·41	9·96	12·43
Religion, Education, and Science	5·91	6·04	6·13
Hospitals, Charitable Institutions, &c.	7·48	8·15	11·00
Special Public Works & Services*	36·43	34·83	35·61
Interest	30·94	30·77	23·51
TOTAL	100·00	100·00	100·00

* Owing to the mode of distributing miscellaneous expenditure prior to 1882, the figures for 1880, under General Administration and Law and Protection, are relieved of certain charges, while the converse of this applies to Special Public Works and Services for the same year. The differences, however, are not material as regards comparison.

It will be observed that the General Expenditure of 1890 exceeds that of the previous year by £41,072, or 6·02 per cent., and it exceeds that of 1880 by £307,550, or 74·07 per cent.

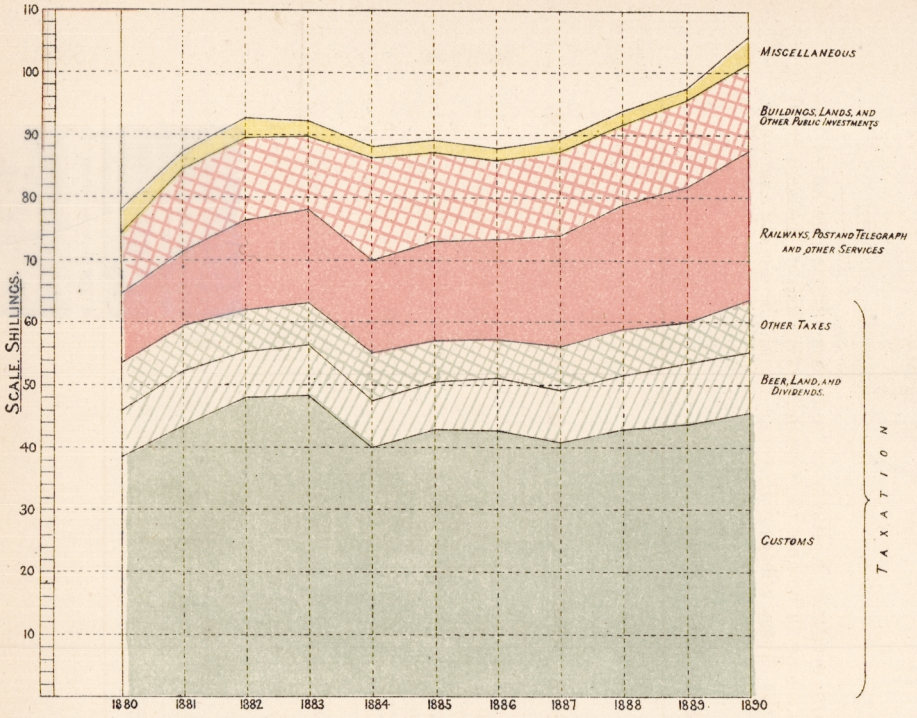
Balance of Revenue and Expenditure.

The total General Revenue for the year 1890 as estimated on 28th February, 1891, exceeds the total General Expenditure by £35,354. The following table shows the relation of General Revenue to General Expenditure during the last Twelve years.

	Revenue.	Expenditure.	Net Excess of Revenue above Expenditure.	Net Excess of Expenditure above Revenue.
	£	£	£	£
1879*	375,570	481,216	...	105,646
1880*	442,158	415,196	26,962	...
1881*	505,006	463,684	41,322	...
1882*	550,765	500,801	49,964	...
1883*	562,066	533,330	28,736	...
1884*	549,741	577,876	...	28,135
1885*	571,397	585,767	...	14,370
1886*	568,924	584,756	...	15,832
1887*	594,976	668,759	...	73,783
1888*	640,068	709,486	...	69,418
1889*	678,909	681,674	...	2,765
1890*	758,100	722,746	35,354	...
	6,797,680	6,925,291	...	127,611
	Treasurer's Estimates.			
1891	884,592	849,508	†35,084	...
1892	910,067	889,630	20,437	...
Aggregate 14 years.	8,592,339	8,664,429	...	72,090

* Including Stock Act Fund. † Excluding Stock Act Fund.

TASMANIA
PUBLIC REVENUE – PER HEAD –
1880 – 1890



REVENUE – PER HEAD – (MEAN POPULATION)
1880-1890

	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890
Miscellaneous	£ S. D 0 3 10	£ S. D 0 3 1	£ S. D 0 3 0	£ S. D 0 2 3	£ S. D 0 2 1	£ S. D 0 2 3	£ S. D 0 1 11	£ S. D 0 2 1	£ S. D 0 2 1	£ S. D 0 1 10	£ S. D 0 4 2
Buildings Land and Investments	0 9 11	0 12 4	0 12 11	0 11 6	0 15 3	0 14 1	0 12 2	0 13 1	0 12 5	0 13 7	0 13 0
Railways Post and Telegraph Etc	0 11 3	0 12 2	0 14 2	0 14 5	0 15 3	0 15 8	0 16 2	0 17 7	0 19 8	1 1 2	1 4 5
Other Taxes	0 7 0	0 7 0	0 6 6	0 6 10	0 7 1	0 6 10	0 6 2	0 5 5	0 7 2	0 6 3	0 8 1
Beer Land and Dividend	0 7 6	0 8 5	0 7 3	0 8 0	0 7 9	0 7 3	0 8 6	0 9 8	0 8 7	0 9 8	0 9 5
Customs	1 18 4	2 3 9	2 5 4	2 8 9	2 0 3	2 3 1	2 2 4	2 1 0	2 3 5	2 3 10	2 5 9
Total Taxes	2 12 10	2 19 2	3 2 1	3 3 6	2 14 10	2 17 2	2 17 0	2 16 1	2 19 2	3 0 3	3 3 3
Total Revenue	3 17 10	4 6 3	4 12 2	4 12 0	4 7 11	4 3 2	4 7 3	4 8 10	4 13 4	4 16 10	5 4 10

Taxes

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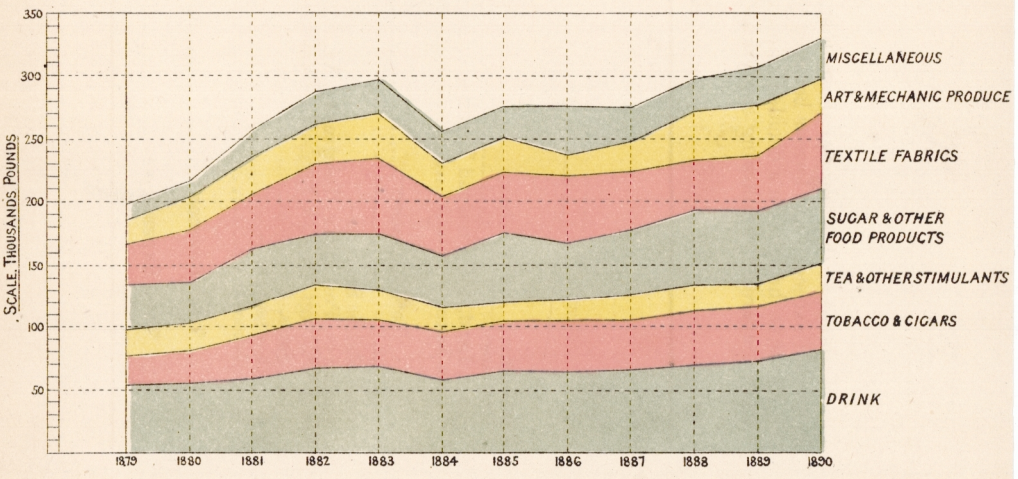
TASMANIA
CUSTOMS REVENUE
1879-1890



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A glance at these figures shows that, although there is a steady upward progress in Revenue and Expenditure, the latter has somewhat exceeded the former between the years 1883 and 1890. It is pleasing to be able to state, however, that in the year 1890 the Revenue has shown a decided improvement. As it is important that the causes affecting Revenue should be closely examined, I have prepared the following analytical Tables:—

REVENUE per Head of Population, 1881–1890.

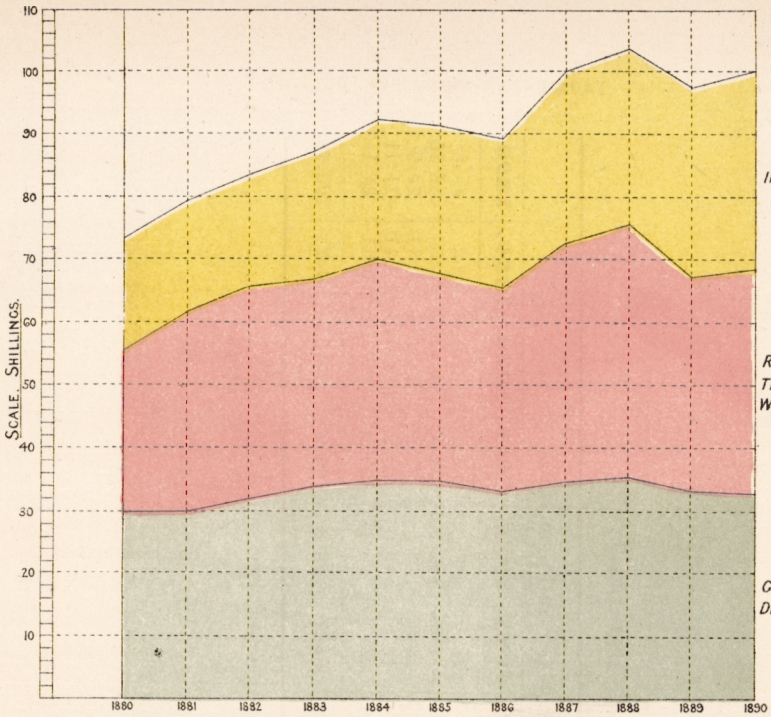
	Per Head of Population.									
	1881.	**1882.**	**1883.**	**1884.**	**1885.**	**1886.**	**1887.**	**1888.**	**1889.**	**1890.**
Taxation—										
Customs	43·9	48·4	48·8	40·9	43·1	42·4	41·0	43·5	43·10	45·10
Beer, Land, and Dividend Taxes	8·5	7·3	8·0	7·0	7·3	8·6	9·8	8·7	9·8	9·5
Other Taxes	7·0	6·6	6·10	7·1	6·10	6·2	5·5	7·2	6·3	8·0
Total Taxation	59·2	62·1	63·6	54·10	57·2	57·0	56·1	59·2	60·3	63·3
Special Public Services—										
Railways, Post Office, Telegraphs, &c.	12·2	14·2	14·9	15·3	15·8	16·2	17·7	19·8	21·2	26·1
From Buildings, Land, & Public Investments—										
Rent, Sales, &c.	12.4	12·11	11·5	15·9	14·1	12·2	13·1	12·5	13·7	13·1
From other sources—										
Miscellaneous	3·1	3·0	2.3	2·1	2·3	1·11	2·1	2·1	1·10	3·1
Total Revenue	86·9	92·2	91·11	87·11	89·2	87·3	88·10	93·4	96·10	105·6
Total Expenditure	79·8	83·10	87·3	92·5	91·6	89·8	100·0	103·5	97·2	100·7

Expenditure per Head of Population, 1881–1890.*

	Per Head of Population.									
	1881.	**1882.**	**1883.**	**1884.**	**1885.**	**1886.**	**1887.**	**1888.**	**1889.**	**1890.**
	s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
General and Departmental	30·1	32.2	34·0	34·8	34·6	33·4	34·9	35·11	33·5	32·10
Railways, Post and Telegraph	16·2	19·7	18·0	17·7	18·4	19·5	21·3	22·1	21·11	24·9
Public Works and other Services	15·6	14·6	16·7	18·0	15·4	13·0	16·9	18·6	11·11	11·11
Interest on Public Debts, &c.	17·11	17·7	18·8	22·0	23·1	23·11	27·3	26·11	29·11	31·1
	79·8	83·10	87·3	92·3	91·3	89·8	100·0	103·5	97·2	100·7

* Figures corrected in accordance with the results of last Census.

TASMANIA
PUBLIC EXPENDITURE –1880-1890–
PER HEAD MEAN POPULATION



EXPENDITURE-PER HEAD-(MEAN POPULATION)

1880–1890	£ S. D	£ S. D	£ S. D	£ S. D	£ S. D	£ S. D	£ S. D	£ S. D	£ S. D	£ S. D
General and Departmental	1 10. 1	1 10. 1	1 12. 3	1 14. 0	1 14. 9	1 16. 6	1 13. 4	1 14. 8	1 15. 11	1 13. 5	1 13. 0
Public Works and other Services	1 5. 10	1 11. 8	1 14. 1	1 14. 7	1 15. 7	1 13. 9	1 12. 5	1 18. 0	2 0. 7	1 13. 10	1 15. 11
Interest	0 17. 2	0 17. 11	0 17. 7	0 18. 8	1 2. 1	1 3. 3	1 3. 11	1 7. 4	1 6. 11	1 9. 11	1 11. 1
Total	3 13. 1	3 19. 8	4 3. 10	4 7. 3	4 12. 5	4 11. 6	4 9. 8	5 0. 0	5 3. 5	4 17. 2	5 0. 0
	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890

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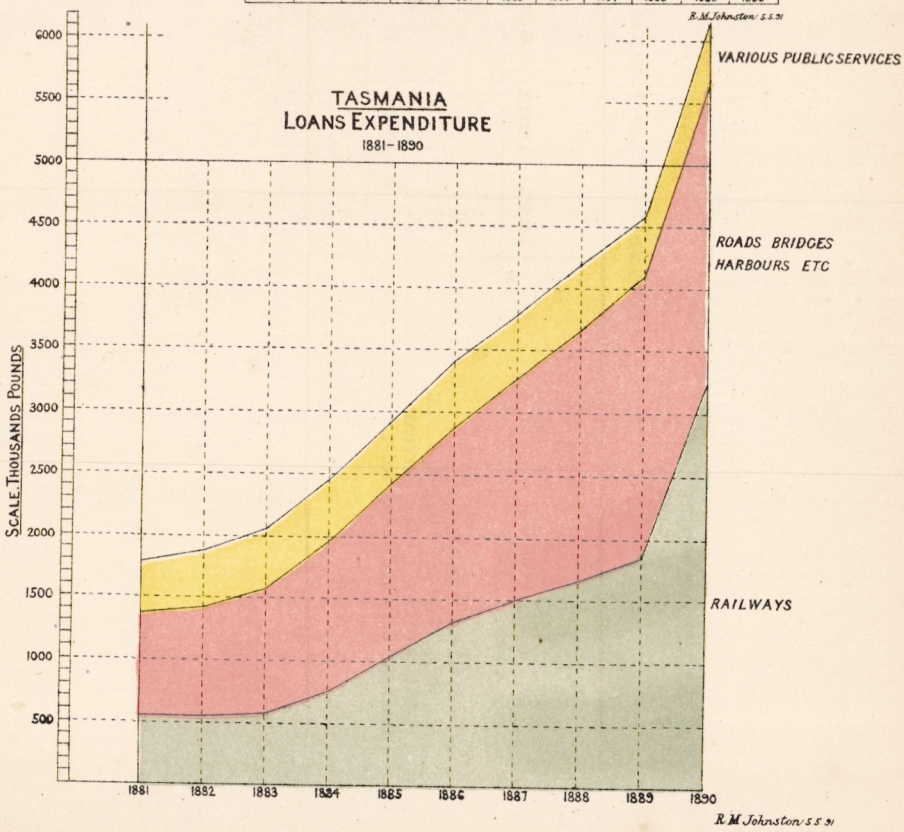

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FURTHER Analyses of Revenue and Expenditure items for the Years 1881 to 1890.

REVENUE.

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Customs Revenue ..... £	254,591	288,523	297,175	254,946	276,100	276,265	274,065	297,912	307,352	329,067
Ditto per-centage relative to Total Imports value	17·79	17·55	16·52	15·86	15·99	15·95	17·68	18·74	19·23	17·34
Ditto per-centage Total Revenue	50·42	52·35	52·86	46·42	48·32	48·56	46·06	46·54	45·27	43·40
Ditto per head of Population..... *s. d.*	43·9	48·4	48·8	40·9	43·1	42·4	41·0	43·5	43·10	45·10
Dtto per cent. to Total Taxation	73·86	77·80	73·07	74·07	75·41	74·37	72·99	73·41	72·72	72·42
Total Revenue..... £	505,006	550,765	562,066	549,741	571,412	568,924	594,976	640,068	678,909	758,100
Ditto per head of Population ..... *s. d.*	96·10	92·2	91·11	87·5	89·2	87·3	88·10	93·4	90·10	105·6
Total Taxation ..... £	344,723	370,856	388,407	344,192	366,118	371,545	375,501	405,807	422,643	454,431
Ditto per head of Population..... *s.*	59·2	62·1	63·6	54·10	57·2	57·0	56·1	59·2	60·3	63·3
Dito per-centage to Total Revenue	68·26	67·33	69·11	62·61	64·07	65·31	63·11	63·40	62·25	59·94

POPULATION, Revenue, and Expenditure, 1883 and 1890.

	1883.	1890.	Increase.	
	£	£	£	per cent.
Revenue	562,066	758,100	196,034	34·88
Expenditure	533,330	722,746	189,416	35·51
Interest on Loans	113,959	223,652	109,693	96·26
Customs	297,175	329,067	31,892	10·73
All Taxes (General)	388,407	454,431	66,024	17·00
Population	123,650	145,290	21,640	17·50

The broad facts of the relation between Revenue, Expenditure, and Population are best appreciated by contrasting the years 1883 and 1890. In this interval—

The Total Revenue has increased by.....	£196,034, or	34·88 per cent.
Customs have increased by.....	£31,892, or	10·73 ,,
All Taxes have increased absolutely by...	£66,024, or	17·00 ,,
All Taxes have decreased relatively by...	3*d.* per head, or	0·39 ,,
Population has increased by.....	21,640, or	17·50 ,,
Total Expenditure has increased by.....	£189,416, or	35·51 ,,
Interest on Loans has increased by.....	£109,693, or	96·26 ,,

Thus, we perceive that the rate of increase in Revenue is nearly double that of Population, while the rate of increase in Expenditure as a whole is about equal to that of Revenue; and while the *Revenue per head* of population has risen from 91*s.* 11*d.* to 105*s.* 6*d.*, equivalent to 13*s.* 11*d.* increase per head, Expenditure per head has only risen from 87*s.* 3*d.* to 100*s.* 7*d.*, equivalent to 13*s.* 4*d.* increase.

The lower rate per head of Revenue from Customs in the years 1884–89 as compared with 1883 is no doubt largely owing to important remissions made on Tea and other articles at the close of the year 1883; but concurrently with this there has been a gradual decline in the consumption of foreign spirits, the latter falling from 815 gallons per 1000 persons per year in 1881–1882 to 646 gallons per 1000 in the last two or three years. This diminution, however pleasing as it is, as an index of the improved habits of the people, is a serious matter as touching the Revenue.

Revenue and Expenditure.

If we now closely examine the figures relating to Expenditure we find that nearly the whole of the increased Expenditure between 1883 and 1890, amounting to £189,416, is due to the large increment to interest on loans and other expenses in connection with New Railways and Public Works. Although the work of the General Administration and other Public Departments has also increased during these six years, it has not caused any material addition to the General Expenditure, and relatively, to Population, it actually shows a decrease, as may be seen from the following table; thus—

COST per Head.

	1883.	1890.	1890.	
			Increase.	Decrease.
	s. d.	*s. d.*	*s. d.*	*s. d.*
General Administration	9·10	9·11	0·1	...
Law, Protection, Education, Charities, and Hospitals	25·0	22·11	...	2·1
Railways, Roads, & Public Works	33·9	36·8	2·11	...
Interest	18·8	31·1	12·5	...
Total Cost	87·3	100·7	13·4	...

It appears that the 13*s.* 4*d.* forming the increase per head is mainly due to the interest on loans for Public Works, while the Departments connected with the General Administration of Government, Law, Protection, etc., have actually decreased 2*s.* per head.

Sources of Revenue in Australasian Colonies.

The proportions which the several sources of income have contributed to the Total Revenue in different Colonies are shown as follows :—

Sources of Revenue in the various Colonies of Australasia during the Year 1890 compared.

Numerical.

Colony.	Raised by Taxation.		Raised by Sales and Rental of Crown Lands.		Railway Receipts & other Sources of Revenue.	Total Revenue.	Total Revenue per Head of mean Population.
	From Customs.	Other Taxes.	Sales.	Rental.			
1890.	£	£	£	£	£	£	£ s. d.
Victoria	2,658,010	972,804	442,583	140,377	4,305,385	8,519,159	7 8 1
New South Wales	1,888,321	860,018	1,170,794	928,547	4,650,940	9,498,620	8 12 5
Queensland	1,261,757	266,883	50,273	450,579	1,320,731	3,350,223	7 18 11
South Australia	598,005	192,172	72,237	174,190	1,521,168	2,557,772	7 19 7
Western Australia	182,546	22,066	33,842	67,362	108,498	414,314	9 3 8
Tasmania	329,067	125,364	47,319	35,805	220,545	758,100	5 5 6
New Zealand	1,535,868	638,117	154,584	158,755	1,720,705	4,208,029	6 14 7
Total Australasian Colonies	8,453,574	3,077,424	1,970,632	1,955,615	13,848,972	29,306,217	7 13 11

Centesimal.

Colony.	Proportion of Taxation raised by Customs.	Raised by Taxation.		Raised by Sales and Rental of Crown Lands.		Railway Receipts and other Sources of Revenue.	Total.
		From Customs.	Other Taxes.	Sales.	Rental.		
1890.							
Victoria	73·20	31·20	11·42	5·20	1·65	50·53	100·00
New South Wales	68·70	19·88	9·06	12·33	9·77	48·96	100·00
Queensland	82·54	37·65	7·96	1·50	13·45	39·44	100·00
South Australia	75·69	23·38	7·51	2·82	6·81	59·48	100·00
Western Australia	89·24	44·06	5·32	7·93	16·26	33·33	100·00
Tasmania	72·42	43·41	16·53	6·24	4·72	29·10	100·00
New Zealand	70·64	36·49	14·17	3·67	3·78	41·89	100·00
Total Australasian Colonies	73·32	28·85	10·50	6·72	6·67	47·26	100·00

These tables are of much interest, as they show the varying resources of each Colony. It will also be apparent that the proportion of revenue in each Colony raised by means of taxation is only to a limited extent a matter of policy or choice ; and so long as the revenues derivable from the profits of railways, and especially revenues from the alienation and rental of Crown lands, differ to such a remarkable extent as they now do in each Colony, so long must there be a corresponding difference in the proportion of revenue derived from taxation, whether direct or indirect.

This is made more manifest by the following abstract, showing that where the revenues derived from lands, railways, &c. are extraordinarily high, the revenues from taxation, as a rule, are comparatively low :—

REVENUE raised per Head of Population (1890).

	Railways.	From Land Sales and Rental.	From Taxation.
	£ s. d.	£ s. d.	£ s. d.
New South Wales	2 14 10	1 18 2	2 9 11
Queensland	2 1 10	1 3 9	3 12 6
Western Australia	1 1 7	2 14 5	4 10 8
South Australia	3 7 5	0 15 5	2 9 4
Victoria	2 14 6	0 10 2	3 3 1
New Zealand	1 16 7	0 10 0	3 9 6
Tasmania	0 14 3	0 11 7	3 3 3
Total	2 9 5	1 0 7	3 0 7

Thus, it is somewhat surprising to find that Tasmania's taxation, *per head*, is so low, seeing how small an amount (£1 5*s.* 10*d.*) per head she derives from land and railways.

Relative Cost of Government in Australian Colonies.

It has been shown that the cost of the General Government of Tasmania amounts to £722,746 for 1890, or £5 0*s.* 7*d.* per head of total population, and that fully 67 per cent. of this sum is due to Interest on Loans and maintenance of Roads, Railways, Post Offices, and Telegraphs throughout an area of 26,215 square miles. It is evident, therefore, that any comparison with the cost of government of a similar population aggregated within *one square mile* of land, as in the local government of towns in thickly-populated European centres, must be utterly misleading in any enquiry as to relative economy. Centralisation of people within a small area, as in towns, certainly increases the cost of government relative to *area*, but the most extravagantly managed city, if measured *per head of population*, must of necessity compare favourably with a sparsely populated colony containing the same population, as its expenditure is rather related to extent of land than to numbers of people. Centres for schools, railway stations, post and telegraph offices and such like ; roads, jetties, bridges, railways, &c. are determined by area in young countries ; and the offices must be multiplied and the mileage of roads increased, independently of obvious but irrelevant considerations that within a single square mile in certain countries a larger population with larger traffic requires fewer independent offices, and but a fraction of the mileage of the roads and railways necessary for the development of large areas of land and the establishing of the *nuclei* of the towns and cities of the future.

The only true way in which the relative economy of any Colony can be measured is by contrasting its cost of Government with other countries similarly conditioned. This is a difficult matter, because, although the various

Australian Colonies are similar to each other as regards the functions taken up by the General Government, there are no two exactly alike as regards the area or density of population. The greatest part of the territory of the two largest Colonies (Western Australia and South Australia) is a *terra incognita*, and cannot be said to be governed in any sense so far as cost of government is concerned.

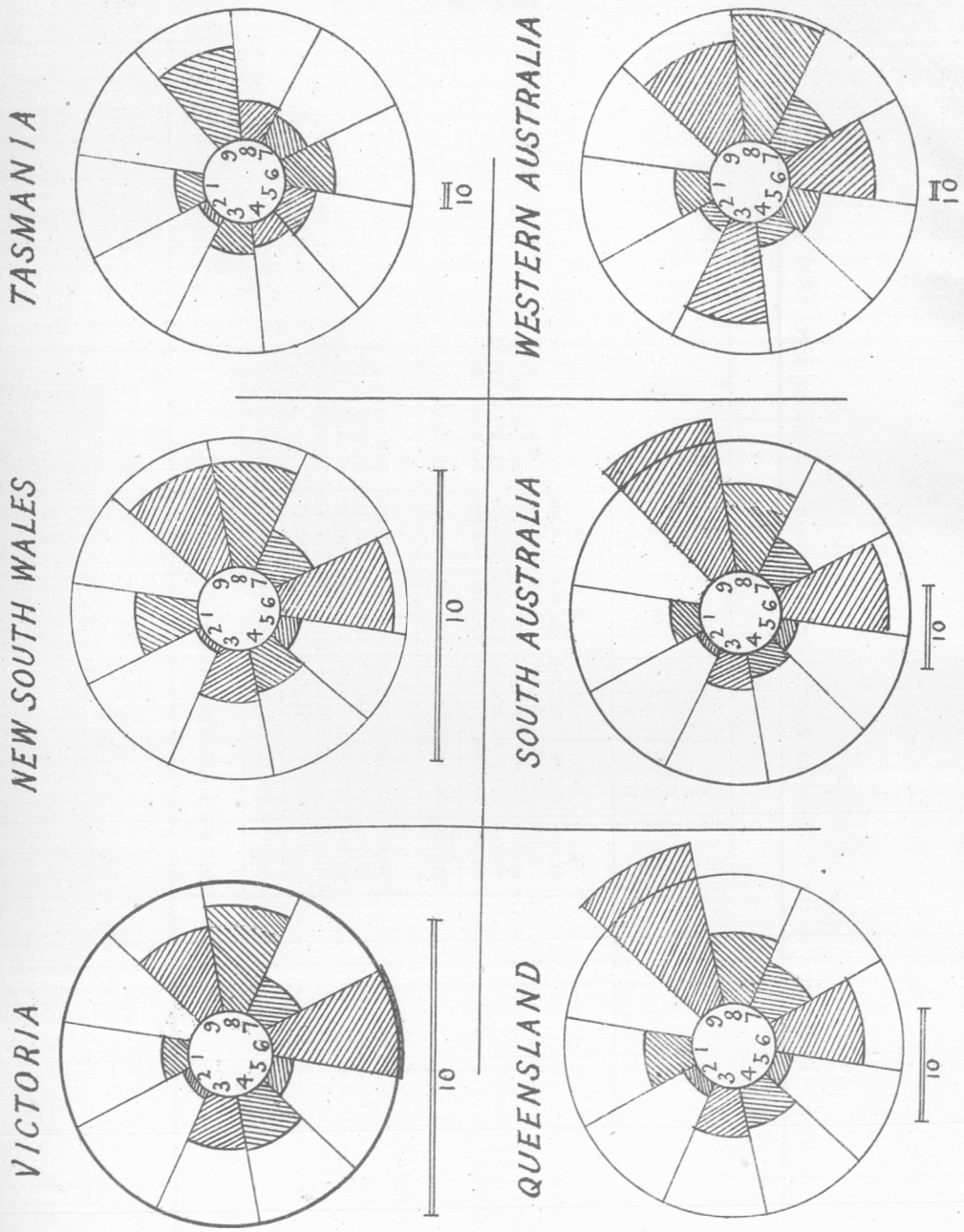
The differences referred to are best appreciated by taking Tasmania as the unit for the comparison of relative extent of area, and by measuring the relative stages of development in each Colony by the density of population, railways (open), &c., per square mile ; thus—beginning with the highest :—

Size of Colonies, taking Tasmania as the unit.		Stage of Development measured by Density of Population, &c., 1890.			
			Per Square Mile.		Per 10,000 sq. miles.
			Population.	Export Domestic Products.	Railways.
All Australasian Colonies	120½			£	miles.
1. Western Australia	40	1. Victoria	12·89	117·11	330
2. South Australia	34	2. New Zealand	5·99	90·24	203
3. Queensland	25½	3. Tasmania	5·54	54·58	180
4. New South Wales	12	4. New South Wales	3·61	55·46	78
5. New Zealand	4	5. Queensland	0·59	12·58	41
6. Victoria	3⅓	6. South Australia	0·36	4·88	19
7. Tasmania	1	7. Western Australia	0·04	0·62	7
		All Australasian Colonies.	1·20	16·41	41

The aggregates of Colonies, *per se*, whether as regards cost of government, trade, or population, can afford no clue to relative economy, the present stage of development, or to rate of progress made from year to year. When their respective areas differ as they do in the proportions of between 1 and 40, nothing can be more fallacious or misleading than to pursue investigations relating to causes or rates of developmental progress without first reckoning how far extent of area alone may be considered as one of the principal determining causes. This subject is more fully discussed hereafter, but it is evident that comparisons based upon *aggregates* are altogether unscientific under such circumstances. Between each Colony the only true test for determining relative developmental progress and relative cost of Government should be based upon common factors : and the best for such purposes would undoubtedly be on the basis of *per square mile of territory* for the former and *per head of population* for the latter.

As the relative cost of Government in each Colony is a matter of the greatest importance, the following table has been carefully prepared, showing the cost of Government in each of the Colonies of Australia and Tasmania, under each of the great divisions of expense common to them all. The fact that Tasmania, relatively, takes the second position—that is, next to Victoria —in the extent to which artificial provisions have been made to advance the development of its territory, is in itself a good index that the cost per head fairly indicates the relative economy shown in the Government of each Colony compared. A diagram has also been prepared showing to the eye the relative cost of each great subdivision. In no other way can the differences be so readily perceived in each of the great divisions forming the chief items of expense in the development of young countries.

RELATIVE COST OF GOVERNMENT IN VARIOUS COLONIES



COST PER HEAD

(1) General Government (2) Customs and Excise (3) Law and protection
(4) Religion and Science (5) Hospitals, Charities, &c. (6) Railways
(7) Post and Telegraph (8) Other Public Works (9) Interest on debt.
(10) RELATIVE ABSOLUTE COST

R M Johnston.

Cost of Government in the Colonies of Australia and Tasmania compared, 1889–1890.

	Actual.						Per Head.					
	Tasmania, 1890.	N. S. Wales, 1890.	Victoria, 1889-90.	Queensland, 1889-90.	S. Australia, 1890.	W. Australia, 1890.	Tasmania, 1890.	N. S. Wales, 1890.	Victoria, 1889-90.	Queensland, 1889-90.	S. Australia, 1890.	W. Australia, 1890.
	£	£	£	£	£	£	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1. General Government	62,436	1,134,027	432,211	334,434	138,386	22,999	8 9	20 7	7 6	15 9	8 7	10 2
2. Customs and Excise	8588	63,145	124,132	52,150	22,526	8583	1 2	1 2	2 2	2 6	1 5	3 10
3. Law and Protection	68,027	856,821	930,974	326,069	191,487	70,916	9 6	15 7	16 2	15 5	11 11	31 5
4. Religion, Science, and Education	42,744	754,499	1,029,214	271,065	130,419	16,597	5 11	13 8	17 11	12 10	8 2	7 4
5. Hospitals, Charities, &c.	54,034	259,485	316,140	110,547	86,694	24,047	7 6	4 9	5 6	5 3	5 5	10 8
	235,829	3,068,177	2,832,671	1,094,265	569,512	143,142	32 10	55 9	49 3	51 9	35 6	63 5
Special Public Works Services.												
6. Railways	110,227	2,043,168	2,511,106	639,597	567,663	62,270	15 4	37 1	43 8	30 3	35 5	27 7
7. Post, Telegraphs	67,754	648,992	709,328	333,047	186,982	36,609	9 5	11 9	12 4	15 9	11 8	16 3
8. Public Works and other Services	85,284	1,893,893	1,524,804	478,712	323,981	87,942	11 11	34 5	26 6	22 8	20 3	39 0
9. Interest on Public Debt	223,652	1,895,655	1,548,145	1,139,034	777,995	71,773	31 1	34 4	26 11	53 11	48 6	31 10
10. Other expense	...	...	519,683	...	153,125	...	...	...	9 0	...	9 7	...
	486,917	6,481,708	6,813,066	2,590,390	2,009,746	258,594	67 9	117 7	118 5	122 7	125 5	114 8
	722,746	9,549,885	9,645,737	3,684,655	2,579,258	401,736	100 7	173 4	167 8	174 4	160 11	178 1

A careful study of these figures and the accompanying diagram reveals curious facts ; but, in whatever way we look at them, it is clear that, relative to functions of Government, Tasmania stands out from all in the marvellously low relative cost of her Government. The two great divisions—(1) General Government, including Customs, Law, Police, Education, Hospitals, and Charities, &c. ; (2) Railways, Telegraphs, Post Offices, Public Works and Interest on Loans, &c.—bring these contrasts still more vividly before the mind ; the order of each Colony, beginning with the least costly, standing thus—

ORDER of Colonies—Cost of Government.

(1.) General Government, &c. : Cost per head.		(2.) Railways, Interest on Loans : Cost per head.		Total Expenditure : Cost per head.	
	£		£		£
1. Tasmania	32·10	1. Tasmania	67·9	1. Tasmania	100· 7
2. South Australia	35· 6	2. Western Australia	114·8	2. South Australia	160·11
3. Victoria	49· 3	3. New South Wales.	117·7	3. Victoria	167· 8
4. Queensland	51· 9	4. Victoria	118·5	4. New South Wales	173· 4
5. New South Wales	55· 9	5. Queensland	122·7	5. Queensland	174· 4
6. Western Australia	63· 5	6. South Australia	125·5	6. Western Australia	178.1

The fact that Tasmania compares so favourably with all the Colonies may surprise many who have been misled by references to amount of *Taxation per head*. But it is obvious that only a small portion of the revenue of each Colony is raised by taxation. The total cost of Government can alone be obtained from actual expenditure under the various divisions of expense ; and from comparisons made in this way of the relative cost of Government in the Australian Colonies, it has been demonstrated that Tasmania is by far the least costly.

The extent of this lower relative cost is best appreciated by showing what the expenditure of Tasmania would have been in the year 1890 if calculated at the respective *rates per head* of the various Colonies.

	s. d.	*s. d.*		£	Excess above Tasmania. £
1. Thus, if at Tasmania's own rate, viz., 100·7 per head, it would show the actual sum		...	=	722,746	...
2. If at the rate per head of South Australia		160·11	=	1,191,950	469,204
3. Ditto Victoria		167· 8	=	1,211,770	489,024
4. Ditto New South Wales		173· 4	=	1,252,810	530,064
5. Ditto Queensland		174· 4	=	1,260,030	537,284
6. Ditto Western Australia		178· 1	=	1,287,100	564,354

Thus, the rate of South Australia, the next lowest of the Australian Colonies, would add £469,204, or 64·9 per cent. of the present expenditure of Tasmania, while the rate of Western Australia, the highest of all, would add 78·1 per cent. to the present yearly expenditure of Tasmania. The necessary qualification regarding sparsity of population must be reckoned with as regards some of the items of expense before justice would be done to Queensland and Western Australia ; but this does not apply to Victoria, which has the advantage of being the most densely populated of all the Colonies.

Relative Cost of Government in Tasmania in the Years 1880 *and* 1890.

By pursuing the same method of enquiry, the direction in which the Local Cost of Government has increased is also plainly revealed; thus—

Cost of Government in Tasmania per Head.

	Year 1880.	Year 1890.	Increase.
	£	£	£
General Government, including Customs, Excise, Law, Police, Defence, Education, Hospitals, Charities, &c.....	1·49	1·64	0·15
Special Public Works and Services, including Railways, Roads, Bridges, (not including Loans Expenditure), &c., Post Office, Telegraphs, and Interest on Public Debt	2·16	3·39	1·23
	3·65	5·03	1·38

That is, the relative cost of the Government of the Country has increased 37·82 per cent., or 24*s.* 7*d.* per head, since the year 1880; and of this increase 86 per cent. is due to the very large amount of Public Works, roads, railways, &c. carried out and maintained, together with the interest on loans expended on the larger works. It is here clearly demonstrated that the cost of the General Government has contributed very little to the increase since the year 1880, and that even the total cost of Government in the year 1890, when compared, is so far below the relative expense of other Australian Governments as to represent a saving in Tasmania of from £469,204 to £564,354 per year.

Loans floated in London.

The following statement shows in chronological order the various Tasmanian Loans floated in London, the prices realised for each, and also the various rates, reduced to a common standard for comparison :—

Act.	Year.	Amount of Loan.	Nominal Rate of Interest.	Gross Amount realised.	Average Amount realised per cent.*	Rate of Interest on Amount realised reduced to equivalent at par.*
		£	£	£	£ *s.* *d.*	£
29 Vict. No. 2	1867-8	102,500	6	96,760	94 11 8	6·23
31 Vict. No. 9	1868	400,000	6	409,872	102 9 4	5·85
Ditto.....	1871	52,800	6	55,888	105 17 0	5·66
33 Vict. No. 38	1870	100,000	6	107,159	107 3 2	5·59
41 Vict. No. 3	1878	300,000	4	277,608	92 10 9	4·32
44 Vict. No. 34	1881	300,000	4	298,765	99 11 9	4·01
46 Vict. No. 45	1883	500,000	4	492,420	98 9 8	4·06
47 Vict. No. 47	1884	800,000	4	803,240	100 8 1	3·98
49 Vict. No. 54	1886	1,000,000	4	998,945	99 17 11	4·00
52 Vict. No. 68	1889	1,000,000	3½	982,855	98 5 8	3·56

* Accrued interest and expenses not deducted.

Thus it is most satisfactory to note that the credit of the Colony has more than kept pace with its general progress. The last Loan* was even more satisfactory than is shown by the above comparative figures, for if the necessary qualifications be made for accrued interest, &c. at the time of floating each Loan it will appear that the last Loan has been the most favourable of all; thus:—

Year.	Amount of Loan.	Average gross amount realised per cent.	Expenses per cent.	Accrued Interest per cent.	Net Amount realised per cent. less accrued interest.	Equivalent of Interest at par.
	£	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
1878...	300,000	92 10 9	0 18 7	1 9 3	90 2 11	4·44
1881...	300,000	99 11 9	0 18 11	1 6 11	97 5 11	4·11
1883...	500,000	98 9 8	0 17 9	1 13 11	95 18 0	4·17
1884...	800,000	100 8 1	0 18 3	1 17 1	97 12 9	4·10
1886...	1,000,000	99 17 11	0 18 0	0 11 6	98 8 5	4·06
1889...	1,000,000	98 5 8	1 4 10	0 12 2	96 8 7	3·63

Particulars of last Loan floated in London, on 16th April, 1889.

The last Tasmanian Loan floated in London was the first issue of the Colony's debentures in the form of "Inscribed Stock;" and notwithstanding the hostility of the Tasmanian Main Line Railway Company, who opposed its quotation because of some petty claims then awaiting the judgment of the Supreme Court, the Loan—through the able and energetic management of the Hon. E. N. C. Braddon (Agent-General) and Mr. D. Larnach (of the London and Westminster Bank)—was the most complete financial success hitherto gained by the Colony. The following is a summary of fuller prrticulars:—

1. Amount floated—£1,000,000, inscribed.
2. Nominal rate of interest fixed—3½ per cent.
3. Minimum price fixed—£97 for every £100, the price including interest from 1st April, 1889.
4. Number of tenders—170.
5. Amount tendered—£2,195,100.
6. Number of successful tenders---98.
7. Highest tender per £100—(92) £100.
8. Lowest successful tender—(6) £97 18*s.* 6*d.*
9. Gross proceeds—£982,855 7*s.* 6*d.*, or £98 5*s.* 8·52*d.* per cent.
10. Accrued interest—£6106 0*s.* 4*d.*, or £0 12*s.* 2·54*d.* per cent.
11. Expenses—£12,438 4*s.* 5*d.*, or £1 4*s.* 10·51*d.* per cent.
12. Gross proceeds (*ex* accrued interest)—£976,749 7*s.* 6*d.*, or £97 13*s.* 5·98*d.* per cent.
13. Net proceeds (*i.e.*, *ex* accrued interest and expenses)—£964,311 2*s.* 9*d.*, or £96 8*s.* 7·47*d.* per cent.

This most favourable result places Tasmania's credit almost upon equality with the two leading Colonies of Australia; thus—

* Debentures amounting to £1,106,500 were issued at Par. in 1890 to the T.M.L. Ry. Coy., as payment for the Main Line Railway taken over by the Government.

Australasian Loans floated in London, 1888–1890.

	Year.	Loan.	Nominal Rate.	Gross proceeds.	Net Proceeds per £100.	Actual Rate.
		£			£ s. d.	
Victoria	1889	3,000,000	3½	103 6 0	101 11 11½	3·44
New South Wales	1889	3,500,000	3½	102 8 0	99 17 9½	3·50
Queensland	1888	2,520,100	3½	...	93 7 10¼	3·75
South Australia	1889	1,317,800	3½	100 2 11	98 3 9½	3·56
Tasmania	1889	1,000,000	3½	98 5 8	96 8 7	3·63
New Zealand	1889	2,700,000	3½	95 16 8	...	...
Queensland	1890	2,264,000	3½	97 15 7	...	...
W. Australia	1889	100,000	4	108 15 3	...	...
Victoria	1890	4,000,000	3½	101 10 4½	98 19 6¼	3·51

Total Public Debt of Australasia, with Mean actual Rate of Interest.

	31 Dec. Year.	Total Public Debt.	Interest on Debt.		Debt per Head.
			Current Year.	Mean Actual Rate.	
		£	£		£ s. d.
Western Australia	1890	1,367,445	71,775	4·22	29 10 10
Tasmania	,,	6,432,800	223,652	4·08	44 5 6
Victoria*	,,	41,377,693	1,548,145	4·08	36 10 2
New South Wales	,,	48,425,333	1,895,655	3·89	43 3 1
New Zealand	,,	37,359,157	1,640,289	4·66	59 4 6
South Australia	,,	20,401,500	777,995	4·10	62 17 2
Queensland	,,	28,105,684	1,139,034	4·05	66 9 7
Total Australasia	,,	183,469,612	7,296,543	3·98	59 4 6

Loans authorised, floated, and expended.

Loans authorised for various purposes.

	1884.	1885.	1886.	1887.	1888.	1889.	1890.	Aggregate. Prior to 1883.	Aggregate. Up to 1890.
Public Works.	£	£	£	£	£	£	£	£	£
Railways	..	374,300	91,540	..	125,856	187,178	1,287,389*	574,000	3,410,791
Telegraphs	..	6500	3500	..	..	8000	3500	75,120	105,971
Roads, Bridges, Harbours, &c.	..	146,070	69,980	..	124,644	281,066	168,980	709,316	1,761,588
Public Buildings	..	78,150	33,080	..	..	53,739	27,781	313,336	596,014
Defences	..	40,000	1300	..	..	15,845	..	58,350	120,868
Other Public Works	..	69,280	2600	..	..	34,172	24,030	74,457	163,213
Total Public Works	..	714,300	201,000	..	250,500	590,000	1,511,680	1,804,579	6,158,445
Other Public Purposes.									
Commutation of State Aid to Religion	..	..	..	..	..	..	..	100,000	100,000
Immigration	..	5000	..	..	..	..	..	230,000	235,714
Miscellaneous	180,000	13,750	7220	100,000	60,000	..	..	247,371	324,591
Total other Public Purposes	180,000	18,750	7220	100,000	60,000	..	..	577,371	660,305
Total authorised	180,000	733,050	208,220	100,000	310,500	590,000	1,511,680	2,381,950	6,818,750†

Money actually raised on Loans.

Public Works.									
Railways	617,000	45,750	377,700	69,700	130,296	126,967	1,253,061*	562,000	3,279,874
Telegraphs	3561	23,640	6500	..	3500	5000	3000	73,220	102,426
Roads, Bridges, and Harbours	138,800	124,710	132,370	3600	159,224	270,186	133,360	543,716	1,623,430
Public Buildings	65,500	38,700	78,150	20,000	13,080	45,030	17,709	255,336	571,329
Defences	..	..	40,000	..	1300	17,495	..	41,000	119,995
Other Public Works	7840	9600	48,125	..	2600	2700	18,400	34,457	120,507
Total Public Works	832,700	222,400	682,845	93,300	310,000	463,305	1,425,530	1,509,729	5,817,561

Other Public Purposes.									
Commutation of State Aid to Religion	..	..	..	..	..	..	..	100,000	100,000
Immigration	..	..	5000	2900	..	..	..	197,100	235,000
Miscellaneous	..	..	7220	6750	108,550	39,930	..	147,300	324,591
Total other Public Purposes...	..	..	12,220	9650	108,550	39,930	..	544,471	659,591
Total raised	832,700	222,400	695,065	102,950	418,550	503,235	1,425,530	2,054,200	6,477,153
Loans actually expended.									
Public Works.									
Railways	205,701	256,372	266,014	197,696	181,102	173,548	1,394,483	553,744	3,254,409
Telegraphs	3798	4086	9027	1921	1968	3518	4390	70,223	101,549
Roads, Bridges, and Harbours	113,301	115,395	119,008	116,958	165,188	122,911	161,285	476,518	1,506,333
Public Buildings	23,797	49,453	54,409	52,807	45,373	32,664	33,366	241,165	553,419
Defences	11,824	14,821	13,129	7262	10,928	7980	5200	35,896	116,591
Other Public Works	11,936	20,542	11,674	711	7877	26,418	29,557	32,429	138,799
Total Public Works	370,359	460,669	473,261	377,355	412,436	367,039	1,628,281	1,409,975	5,671,100
Other Public Purposes.									
Commutation of State Aid to Religion	..	..	..	..	..	..	..	100,000	100,000
Immigration	13,678	4779	3808	2231	..	..		198,800	235,000
Miscellaneous	..	..	7220	..	..	..	..	177,371	184,591
Total other Public Purposes ..	13,678	4779	11,028	2231	..	..	..	476,171	519,591
Total expended	384,037	465,448	484,289	379,586	412,436	367,039	1,628,281	1,886,146	6,190,691
Loans absolutely redeemed, and actual Debt outstanding, on 31st December.									
Moneys actually raised on Loans	832,700	222,400	695,065	102,950	418,550	503,235	1,425,530	..	6,477,153
Redeemed absolutely	6000	17,700	26,400	20,300	21,700	800	3300		
Balance of Debt outstanding	3,202,300	3,357,000	4,026,720	4,109,370	4,499,470	5,019,050	6,432,800		

* £1,125,000 of this item was for the purchase of the T.M.L. Railway, and can scarcely be said to have increased previous current obligations as the purchase cancelled an existing Guarantee, which amounted to an annual charge against Expenditure of £32,500, representing a capital sum of £970,000 at 3½ per cent., and the greater economy since effected in working the line more than counterbalances the extra amount of nominal debt.

† Amount of Loans actually issued to 31st December, 1890, £6,532,600. Balance unexpended ditto, £286,462.

Tasmanian Debentures redeemable.

RETURN made up to 30th June, 1891, showing Amount falling due in each year, together with the Rates of Interest.

Redeemable Debentures.			Amount of Debentures falling due in each year (1891 to 1940).								
Authority.	Rate of Interest.	Amount.	Year.	In London.	In Hobart.	TOTAL.	Amounts and Rates of Interest.				
							3½ per cent.	4 per cent.	4¾ per cent.	5 per cent.	6 per cent.
	Per cent.	£		£	£	£	£	£	£	£	£
29 Vict. No. 2	6	102,500	1891...	...	65,950	65,950	...	21,000†	4750	40,200*	...
30 Vict. No. 19		3100	1892...	67,180	35,400	102,580	...	17,200	200	85,180	...
31 Vict. No. 9		454,500	1893...	102,700	28,800	131,500	...	500	1300	30,000	99,700
32 Vict. No. 30		24,000	1894...	125,850	42,400	168,250	...	2800	40,450	25,000	100,000
33 Vict. No. 38		100,000	1895...	104,500	1400	105,900	...	1400	...	...	104,500
34 Vict. No. 10	5	100	1896...	100,000	...	100,000	...	...	...	...	100,000
	4	15,700	1897...	100,000	...	100,000	...	...	...	...	100,000
36 Vict. No. 3	5	40,200*	1898...	52,800	3900	56,700	...	3900	...	...	52,800
36 Vict. No. 4		60,000	1899...	...	...	...	...	...	...	...	...
36 Vict. No. 9		25,000	1900...	...	31,220	31,220	...	7220	...	...	24,000
38 Vict. No. 24		48,600*	1901...	100,000	...	100,000	...	...	...	...	100,000
41 Vict. No. 3	4	300,000	1902...	...	31,200	31,200	...	28,100	...	...	3100
44 Vict. No. 34		300,000	1903...	...	15,000	15,000	...	15,000	...	...	...
45 Vict. No. 38		102,000†	1904...	...	17,400	17,400	...	17,400	...	...	...
46 Vict. No. 45		545,950	1905...	...	10,500	10,500	...	10,400	...	100	...
,,	3½	700	1908...	300,000	...	300,000	...	300,000	...	...	...
47 Vict. No. 47	4	800,000	1911...	1,000,000	...	1,000,000	...	1,000,000	...	...	...
49 Vict. No. 54		1,000,000	1913...	523,750	22,900	546,650	700	545,950	...	...	...
50 Vict. No. 11	4¾	46,700	1914...	800,000	...	800,000	...	800,000	...	...	...
,,	5	55,180	1920...	300,000	...	300,000	...	300,000	...	...	...
52 Vict. No. 44	4	7220	1940...	2,106,500	...	2,106,500	2,106,500	...	...	...	...
52 Vict. No. 68	3½	1,000,000									
54 Vict. No. 1	3½	1,106,500									
		6,089,350	...	5,783,280	306,070	6,089,350	2,107,200	3,070,870	46,700	180,480	684,100

Less proportion of earlier Debentures, for which redemption has been provided under 52 Vict. No. 68.....	60,400	...	...	60,400	60,400	...	20,200	...	40,200	...
	6,028,950	...	5,783,280	245,670	6,028,950	2,107,200	3,050,670	46,700	140,280	684,100
Annual Interest liability ...	...	...	...	...	246,457·1	73,752·	122,026·8	2218·3	7414·	41,046·

Mean rate of interest on actual indebtedness, 4·20 per cent.

* Redemption of this item provided for in 52 Vict. No. 68. † Redemption for £20,200 of this item provided for in 52 Vict. No. 68.

Summary.

	Rate.	Amount.	Per cent. to Total.	Annual liability for Interest.	
		£	per cent.	£	per cent.
Debentures bearing Interest at ...	3½ per cent.	2,107,200	34·95	73,752	29·92
Ditto	4 ditto	3,050,670	50·60	122,026·8	49·52
Ditto	4¾ ditto	46,700	·77	2218·3	·90
Ditto	5 ditto	140,280	2·33	7414	3·00
Ditto	6 ditto	684,100	11·35	41,046	16·66
All.....	4·087	6,028,950*	100·00	246,457·1	100·00

* On 30th June, 1891, there was issued an additional sum of £550,000 in the form of Treasury Bills. The total amount of Treasury Bills issued at this date was £690,000, of which £20,650 is redeemable in 1891 ; £485,950 in 1892 ; and £183,400 in 1893.

Finances relating to Local Government.

The following Table gives a synopsis of the Receipts and Expenditure of Local Bodies for the year 1890 :—

	No.	Value of Rateable Property.	Revenue.				Expenditure.	Mean Rates levied per £ on Rateable Property
			From Rates, &c.	Government Aid.	Other sources.	TOTAL.		
		£	£	£	£	£	£	*s. d.*
Marine Boards[a]	6	—	—	16,996	36,903[b]	53,899	59,158	—
Municipalities..	21	730,530	69,074	10,996	46,636[c]	126,706	130,857	1 8
Road & Bridge Trusts	100	614,366	18,402	11,539	512	30,453	32,453	0 7
Public Cemeteries.....	22	—	—	—	937	937	1002	—
Town Boards...	7	19,283	952	—	603	1555	2994	1 0
Water Trusts...	1	—	698	—	—	698	463	—
	157	[e]	89,126	39,531	85,591	214,248	226,927	—

[a] Includes Lighthouses. [b] Including receipts from other Governments. [c] Includes receipts from Loans. [d] Includes repayments of Loans. [e] The same property may be rated for Municipal, Road Trust, and Town Board purposes.

Thus, the mean Rate levied in Municipalities during 1890 was 1*s.* 8*d.* per £ of rateable property, *i.e.*, about 3½*d.* below the previous year. The mean Road Trust Rate (7*d.*) is nearly the same as in 1889. Of the £214,248 mentioned above, only £88,830, raised as rates and dues, can be legitimately included as Taxation. The following is a summary of the same :—

	Taxation, Local Government, 1890.	Per Head.
	£	*s. d.*
Municipalities	52,570	7 4
Marine Boards.....	16,639	2 4
Road Trusts.....	18,669	2 7
Town Boards.....	952	0 1
Total Taxation, Local Government.....	88,830	12 4

The Revenue and Expenditure of Local Government for 1890, less aid from General Government, as compared with the previous year and with the first year of decade, are shown as follows :—

	1890.	1889.	1880.
	£	£	£
Revenue.....	178,727	174,642	117,383
Expenditure.....	182,537	179,554	120,915
Municipal Value Rateable Property.....	730,530	682,845	568,796

Taxation—General and Local.

The total Taxation of the Colony (General and Local) for the year 1890 amounts to £542,993, equal to £3 15*s.* 7*d.* per head, or 57·94 per cent. of the whole Revenue for the same year. Of this sum £454,431, or £3 3*s.* 3*d.* per head, was raised by the General Government, and £88,562, or 12*s.* 4*d.* per head, was raised by Local Government. A fuller statement of Taxation is given in the following tables :—

RETURN showing the Amount of Taxation under General and Local Government.

TAXATION, YEAR **1890.**

DESCRIPTION.	TAXATION. Amount.		Per Head of Mean Population, 1890.
I.—GENERAL GOVERNMENT.	£	£	*s.* *d.*
Customs Duties (excluding Bond Rents and Drawbacks)	...	329,067	45 10
Excise—Duty on Beer	...	15,636	2 2
Real and Personal Estates Duties—			
Land Tax	...	42,533	5 11
Dividend Tax	...	9397	1 4
Rural Police Rate (not Municipal)	...	8941	1 3
Licences—			
Dog Licences	...	1398	0 3
Publicans' ditto	...	10,416	1 5
Licences, various	...	3186	0 5
Stamp Duty	...	21,793	3 0
Probate Duty	...	12,064	1 8
*Total Taxation, General Government**	...	454,431	63 3
II.—LOCAL GOVERNMENT.			
MUNICIPALITIES—			
General Rates	49,090		
Dog Tax	2623		
Licences, &c.	828		
Other Taxes	29		
		52,570	7 4
MARINE BOARDS—			
Wharfage	13,636		
Exemptions from Pilotage	149		
Harbour Dues	2806		
Boat and Watermen's Licences, &c.	48		
		16,639	2 4
ROAD TRUSTS—			
Rates	...	18,402	2 7
TOWN BOARDS—			
Rates	...	952	0 1
*Total Taxation, Local Government**	...	88,562	12 4
*Total Taxation, General and Local**	...	542,993	75 7

* Excluding all rates or charges such as gas, water, and light rates—which, though levied in the form of a tax, directly confer upon the person charged an express benefit or service estimated to be equal in monetary value to the rate levied.

TAXATION*—Decennial Return.

AMOUNT.

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
	£	£	£	£	£	£	£	£	£	£
General Government	344,723	370,856	388,407	344,192	366,118	371,544	375,501	405,807	422,644	454,431
Local Government	62,942	66,433	70,911	69,843	75,661	73,628	81,958	78,171	82,301	88,562
TOTAL	407,665	437,289	459,318	414,035	441,779	445,172	457,459	483,978	504,945	542,993

PER HEAD.

	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
General Government	2 19 2	3 2 1	3 3 7	2 14 11	2 17 1	2 17 0	2 16 2	2 19 2	3 0 3	3 3 3
Local Government	0 10 10	0 11 1	0 11 7	0 11 1	0 11 10	0 11 3	0 12 2	0 11 4	0 11 9	0 12 4
TOTAL	3 10 0	3 13 2	3 15 2	3 16 0	3 8 11	3 8 3	3 8 4	3 10 6	3 12 0	3 15 7

* Excluding all rates or charges such as gas, water, and light rates—which, though levied in the form of a tax, directly confer upon the person charged an express benefit or service estimated to be equal in monetary value to the rate levied.

Glancing over the last ten years the most significant points to be noticed are the following :—

Revenue has advanced from £442,145 to £758,100, equal to an increase of 71·46 per cent. ; the Capital invested in Public Works—principally Roads and Railways—as indicated by Public Debt, within the ten years, amounted to £4,489,100 ; Private Wealth has advanced from about £30 millions to about £42 millions, or an increase of £12 millions ; Annual value of Rateable Property has advanced from £708,348 to £1,080,139, or an increase of 52·43 per cent. ; Population has increased 26·60 per cent. ; External Trade has increased 15·52 per cent. ; Shipping tonnage has increased 162 per cent. ; and Land in cultivation has increased by 38·54 per cent.

Twenty years ago there were no Railways in any part of the island. There are now 399 miles open for traffic, whose construction and equipment are valued at £3,088,882, and there are other lines under construction, representing in all a sum of £3,410,791 at the close of the year 1890. It has been estimated that in the year 1890 the saving to the country in cost of transit alone—effected by the cheaper rates on railways—represents a sum of £373,868, exceeding the charge for Interest on Public Debt for all purposes, (Roads, Railways, Harbours, &c.) by £150,216, or a net gain of £1 0*s.* 8*d.* per head of population. The saving in cost of transit alone in the year 1890 ; viz., 373,868, is more significantly appreciated when reduced to its equivalent in Capital Value, and contrasted with the amount of Public Debt incurred and invested in all such reproductive works ; thus—

	£
Public Debt, 1890	6,432,800
Equivalent Capital Value of saving in cost of transit effected by Tasmanian Railways in 1890, reckoned at 4½ per cent.	9,346,700
Net gain to the Colony	£2,913,900

All these matters taken together show that the colony has made remarkable progress during the last 20 years.

PUBLIC Revenue, Expenditure, and Debts of British Possessions for Year 1890 (000's omitted.)

	Revenue.		Expenditure.	Debt.
	Customs Revenue.	Gross Revenue.		
	£	£	£	£
United Kingdom.....	20,424	89,489	87,733	685,954
India*	3844	85,085*	82,473	211,629
Straits Settlements	...	711	626	6
Ceylon	290	1217	1162	2518
Mauritius	267	777	770	781
Labuan	...	3	4	...
Hong Kong	...	416	399	200
	...	88,209	85,434	215,134
Australasia:—				
New South Wales.....	1888	9499	9554	48,425
Victoria	2915	8519	9646	41,378
South Australia	603	2558	2579	20,402
Western Australia.....	183	414	402	1367
Tasmania	329	758	723	6433
New Zealand	1536	4208	4082	37,359
Queensland	1210	3260	3745	28,106
	8662	29,216	30,731	183,470
Fiji	26	67	61	249
Falkland Isles	3	9	9	...
Natal	337	1423	1328	5060
Cape of Good Hope	1354	4430	3864	23,749
St. Helena	6	9	9	1
Lagos	47	56	64	...
Gold Coast.....	133	156	118	...
Sierra Leone	54	74	63	58
Gambia.....	26	31	23	...
	1986	6255	5539	29,117
Canada.....	4925	8195	7396	48,808
Newfoundland	280	303	347	862
	5205	8498	7743	49,670
Bermuda	27	32	30	8
Honduras	30	51	45	18
West India Islands:—				
Bahamas.....	47	55	49	81
Turk's Islands	6	9	8	...
Jamaica	379	789	666	1543
Windward Islands	185	321	316	226
Leeward Islands	77	119	125	92
Trinidad	236	469	475	532
	987	1845	1715	2500
British Guiana*	284	523	508	770
Gibraltar	12	62	59	...
Malta	160	261	267	79
	456	846	834	849
TOTAL.....	...	224,358	219,749	1,166,694

* Figures for 1889 taken.

Taxation in principal British Possessions.

Country.	Year.	Taxation.				Proportion of Taxation raised by Customs.
		Amount. 000's omitted.	Per Head.		Per cent. of Total Revenue.	
		£	£	*s.*	*d.*	
United Kingdom	1891	73,578	1	19	0	82·22	27·76
India	1889–90	31,168	0	2	11	36·64	12·33
Natal	1888	418	0	15	9	29·37	80·62
Canada.....	1888–9	6155	1	4	2	74·86	70·00
Cape of Good Hope	1888	1459	1	0	0	32·84	92·80
Australasia	1890	11,531	3	0	7	39·35	73·32
South Australia.....	,,	790	2	9	4	30·89	75·69
New South Wales...	,,	2748	2	9	11	28·94	68·70
Tasmania	,,	454	3	3	3	59·94	72·42
Victoria	,,	3631	3	3	1	42·62	73·20
New Zealand	,,	2174	3	9	6	51·66	70·64
Queensland.....	,,	1529	3	12	6	43·61	82·54
Western Australia...	,,	205	4	10	8	49·38	89·24

Taxation in principal Foreign Countries.

Country.	Year.	Taxation.				Proportion of Taxation raised by Customs.
		Amount. 000's omitted.	Per Head.		Per cent. of Total Revenue.	
		£	£	*s.*	*d.*	
Denmark	1889–90	2603	1	2	10	81·65	56·78
Russia	1889	61,650	0	10	11	61·00	22·40
German Empire	1890–91	28,290	0	11	6	44·19	50·44
Belgium.....	1888	6195	1	0	4	44·68	—
United States.....	1890	77,550	1	4	10	92·36	61·70
Austria Hungary....	,,	55,120	1	6	10	73·66	—
Italy	1888–9	42,970*	1	8	2	54·32	22·02
France.....	1888	107,900*	2	16	8	72·12	14·22
Norway	1888–9	1474	0	14	9	57·25	77·14

* Less taxes raised for local or municipal purposes.

PUBLIC Revenue, Expenditure, and Debt of Principal Foreign Countries.
(000's omitted.)

	Revenue.		Expenditure.	Debt.
	From Customs.	Gross.		
	£	£	£	£
Russia in Europe 1889	13,805	101,068	96,284	719,232
Norway 1888-9	1137	2575	2422	6428
Denmark 1889-90	1478	3188	3463	10,600
German Empire 1890-91	14,270	64,027	63,017	469,166
Belgium 1888	...	13,865	14,224	79,721
France..... 1888–9	15,340	149,623	147,735	1,265,833
Italy 1888-9	9464	79,105	78,587	473,112
Austria (Proper)..... 1889	3346	45,235	45,004	452,391
Hungary 1890	...	29,609	29,651	
United States 1890	47,850	83,975	54,508	324,090

Taxation, Local and General, in various Countries.

The following is an abstract of the amount of local and general taxes of various countries for the years 1888-90, mainly taken from Mulhall's Dictionary of Statistics, p. 557 :—

	Amount. 000's omitted.			Per Head.	Per cent. to Earnings.
	General.	Local.	Total.		
Europe—	£	£	£	s.	
United Kingdom.....	73,440	45,780	119,220	63	9·3
France	102,000	40,800	142,800	74	13·6
Germany	64,000	44,000	108,900	45	10·4
Russia	61,200	11,200	72,400	16	7·4
Austria.....	50,100	5300	55,400	28	9·5
Italy	53,800	27,200	81,000	54	22·0
Spain	31,900	5000	36,900	41	12·3
Portugal	6600	1000	7600	33	14·0
Sweden.....	3670	3300	6970	28	6·7
Norway	1480	950	2430	24	6·0
Denmark	2530	1000	3530	35	5·5
Holland	8300	6300	14,600	64	15·1
Belgium	6800	3900	10,700	36	6·0
Greece	2400	...	2400*	24	...
Roumania	4200	...	4200*	17	...
Servia	1400	...	1400*	14	...
Europe.....	474,720	195,730	670,450	44	11·0
Ex-European Countries—					
United States	73,800	52,200	126,000	40	5·4
Canada.....	6135	...	6135*	24·2	4·65
India.....	31,168	...	31,168*	2·11	...
Argentina	9700	...	9700*	54 0	11·25
Australasia	11,551	...	11,551*	60·7	5·94
New South Wales	2748	484	3232	57·0	5·59
Victoria	3631	1160	4791	86·10	8·51
Tasmania.....	454	89	543	75·7	7·41
New Zealand	2174	464	2638	84·2	8·25

* Exclusive of Local Taxes.

From the above analyses it is evident that, relative to earnings, the total taxation of the Australasian Colonies bears a much smaller proportion to total earnings than the United Kingdom and the average of European countries, and that even regarded absolutely the taxation of the United Kingdom—General and Local—is 3*s.* per head greater than that of the Colony of New South Wales. This favourable contrast is not revealed when attention is restricted to taxation of General Government, owing to the fact that a large proportion of the functions of government charged to General Government in Australasia is carried out under Local Government in the United Kingdom.

CHAPTER XIII.

Production.

Agriculture.

As usual, the estimates of the season's yield were prepared from the best local information of those immediately interested in nearly all cases *after the cereals were garnered.*

The total land in cultivation during 1890–91 was 517,174 acres, as against 488,354 acres in 1889–90, and 374,374 acres in 1881–2; *i.e.*, the acreage of cultivated lands, inclusive of area in permanent artificial grasses, has increased 28,820 acres, or 5·90 per cent., as compared with 1889–90, and 142,800 acres, or 38·17 per cent., as compared with 1881–82.

The acreage in crop during 1890–91 is stated to be 157,376 acres, that is, a smaller area than during former season by 32,583 acres, and more than during season 1881–82 by 8882 acres.

The following table gives a more detailed statement of the general results, and of the extent of agriculture and horticulture in Tasmania during the last season, together with comparisons with the preceding year and with the corresponding year of the last decade:—

AGRICULTURE, 1890-91, 1889-90, 1881-2.

	1890-91.	1889-90.	1881-2.	1890-91 as compared with 1889-90.		1890-91 as compared with 1881-2.	
				Increase.	Decrease.	Increase.	Decrease.
Wheat—							
Acres	39,452	49,055	51,757	...	9603	...	12,305
Bushels	642,980	756,639	977,365	...	113,659	...	334,385
Bushels per acre	16·29	15·43	18·18	·86	...	...	1·89
Barley—							
Acres	4376	4446	4597	...	70	...	221
Bushels	99,842	105,574	102,475	...	5732	...	2633
Bushels per acre	22·81	23·75	22·31	...	·94	·50	...
Oats—							
Acres	20,740	40,169	27,535	...	19,429	...	6795
Bushels	519,395	1,148,935	783,129	...	629,540	...	263,734
Bushels per acre	25·04	28·60	28·44	...	3·56	...	3·40
Hay—							
Acres	45,381	50,913	34,790	...	5532	10,591	...
Tons	52,021	73,859	44,957	...	21,838	7064	...
Tons per acre...	1·14	1·45	1·29	...	·31	...	·15
Potatoes—							
Acres	20,133	17,015	9670	3118	...	10,463	...
Tons	73,158	72,275	33,565	883	...	39,593	...
Tons per acre...	3·63	4·25	3·47	...	·62	·16	...
Hops—							
Acres	373	536	586	...	163	...	213
Lbs.	432,630	685,031	668,846	...	252,401	...	236,216
Lbs. per acre...	1159·86	1278·04	1143·81	...	118·18	16·05	...
Apples, bushels....	368,986	503,013	142,217	...	134,027	226,769	...
Pears, bushels	23,204	29,828	22,271	...	6624	933	...
Land in crop, acres	157,376	189,959	148,494	...	32,583	8882	...
Land in permanent Artificially sown Grasses, acres	201,060	190,717	136,321	10,343	...	64,739	...
Total Land in Cultivation, acres	517,174	488,354	374,374	28,820	...	142,800	...

LIVE STOCK.

Statistics regarding the number of animals under one year old on 31st March are as follow:—

	No.		PER-CENTAGE UNDER ONE YEAR OLD.					
	1891.	1890.	1886.	1887.	1888.	1889.	1890.	1891.
Horses .	31,165	29,778	10·8	9·65	10·37	8·69	7·89	8·59
Cattle ..	162,440	150,004	18·6	18·07	18·75	16·83	18·59	21·42
Sheep ..	1,619,256	1,551,429	20·2	17·80	26·14	17·57	22·01	24·50

Acreage in Crop and in Cultivation.

It will be observed that the acreage in crop upon the whole is less than in the previous season by 32,583 acres—land in Wheat having decreased by 16,603 acres, Barley by 70 acres, Oats by 19,429 acres, Hay by 5532 acres, and Hops by 163 acres. Potatoes, however, show an increase in area of 3118 acres, and Grass Lands have increased by 10,343 acres. The tendencies of agriculture are better appreciated by tabulating the results over a long period, as follows :—

Acreage in Crop.

	Population.	Acres in Crop.	Acres in Crop per Head.
Year 1860	87,775	152,860	1·74
1870	100,765	157,410	1·56
1880	114,762	140,788	1·23
1891	145,290	157,376	1·09

This analysis clearly shows that relative to population the land devoted to crops has steadily declined from 1·74 acres per head in 1860 to 1·09 acres per head in 1891.

These figures, however, only cover a portion of the farmer's industry in Tasmania ; for, unlike the neighbouring industries in the naturally open tracts of Australia, the Tasmanian farmer on the average combines to a much greater extent the allied branches of stoekbreeding and the dairy. It is necessary, therefore, to glance at figures which may indicate whether the farmer's energies may not have been more vigorously drawn to the two other branches named. This is best indicated by noting the extent of bush land cleared and rendered fit for grazing either upon naturally sown or artificially sown grasses, or by the extent to which tilled lands are being devoted to the growth of Hay ; thus—

Year.	Lands other than portion in Crop rendered fit for grazing.		Hay.	
	Acres.	Acres per head of Population.	Acres.	Acres per head of Population.
	No.		No.	
1860	65,455	·75	31,837	·36
1870	172,847	1·72	33,612	·33
1880	232,511	2·03	33,615	·28
1891	359,798	2·48	45,381	·31

Live Stock.

From these figures it is clear that the land devoted to grazing purposes has upon the whole relatively advanced more rapidly than the growth of population. We are thus prepared to understand why land under tillage has relatively declined in proportion as the lands devoted to grazing purposes have increased. This is also borne out by reference to the Live Stock in each year since 1860.

Number.

	Horses.	Cattle.	Pigs.	Sheep.
	No.	No.	No.	No.
1860	21,034	83,366	31,290	1,700,930
1870	22,679	101,459	49,432	1,349,775
1880	25,267	127,187	48,029	1,783,611
1891	31,165	162,440	81,716	1,619,256
	Per Head of Population.			
1860	·24	·95	·35	19·38
1870	·23	1·01	·49	13·40
1880	·22	1·11	·42	15·54
1891	·21	1·12	·56	11·14

By these analyses we perceive that, as regards *Cattle* and *Pigs*, the development has more than kept pace with the growth of population; but as regards *Horses* and *Sheep*, it is evident the development greatly falls behind decade by decade in comparison with the growth of population within the Thirty years over which the comparison extends. No figures are available to contrast the advance in *Dairy Farming*, but there is good reason for the belief that in this direction a positive advance has been made,—the produce of the 33,189 milch cows alone being valued at £331,890 for the year ending 31st March, 1891, *i.e.*, an estimated advance of £29,260 upon the previous year.

General Crops.

By pursuing a similar mode of investigation with respect to the principal crops during the last thirty years, we are better enabled to determine the actual progress made, thus:—

Yield.

	1860.	1870.	1880.	1891.
1. Yield of Wheat, bushels	1,415,896	896,881	750,040	642,980
2. „ Oats, bushels	926,418	691,250	439,446	519,395
3. „ Barley, bushels	126,605	161,729	169,156	99,842
4. „ Potatoes, tons	32,589	36,028	32,548	73,158
5. „ Turnips, tons	5829	8342	10,294	14,596
6. „ Hops, lbs.	...	785,977	644,273	432,630
7. „ Apples, bushels	118,810	147,614	155,237	368,986
8. „ Pears, bushels	22,049	27,553	22,086	23,204

Thus, broadly, we perceive a very great advance in all crops enumerated, with the important exceptions of Wheat, Oats, and Barley. It is evident that the attention formerly given to cereals is now more profitably directed to root crops; both Potatoes and Turnips showing a very great expansion since 1860. Fruit-growing has also made wonderful progress within this period; and now that the English market is open to us, it is likely that this industry will still more rapidly improve. The backward condition of Wheat-growing in this Colony, however, is a matter to be deplored, as during the last five years the local supply has failed to meet the

demands of the local market. The importations of Wheat and Flour during the year ending the 31st March, 1891, alone represents 289,653 wheat bushels. This demands special attention.

Cultivation of Wheat.

The continued stationary condition or decline in the cultivation of this important cereal is a very grave matter. Ever since the year 1882-3 the local supply has failed to meet the local requirements, and has to be supplemented by foreign importations of Wheat and Flour. During the last 10 years we have had to import in this way Wheat and Flour equivalent to 1,624,930 wheat bushels, which, even at 4*s.* per bushel, represents a sum of £324,986. But the greater portion of these imports were obtained within the last five years, viz., 1,329,006 wheat bushels, which, at 4*s.* per bushel, represents a sum of £265,801, or £53,160 *per year*. It is difficult to find a satisfactory reason for this backward condition of our Wheat industry, for if we investigate the results in the neighbouring colonies it is manifest that as regards steadiness of climatic conditions, fertility of soil, yield per acre, rates of wages, and local market prices, Tasmania is by far more favourably conditioned than any other Colony, save New Zealand.

Wheat Yield in Australasia, and Local Consumption.

Average of Five years ending Year 1890–1891.

	Yield per Acre.	In bushels, yield per Head.	Consumption per Head.	Local Consumption.	
				Deficiency.	Surplus.
New Zealand	23·92	12·8	7·4	—	5·4
Tasmania	17·24	5·0	6·6	1·6	—
New South Wales	12·16	4·2	6·5	2·3	—
Western Australia	11·88	8·8	6·5	—	2·3
Queensland	12·40	0·2	6·1	5·9	—
Victoria	10·06	11·1	6·4	—	4·7
South Australia	6·43	15·1	6·5	—	8·6
Australasia	10·03	10·6	6·5	—	4·1

It seems to be a most remarkable thing that while the soil of Tasmania produces on the average nearly twice the yield (17·24) of the average of Australasia, that she should under-produce by about 32 per cent.: while the whole of Australasia, only yielding 10·03 bushels per acre, should produce 4·1 bushels per head, or 63 per cent. *above* the requirements for Australasia.

The most unsatisfactory view of the matter, however, is shown in the following table, covering a period of eleven years. It will be observed that during the first quinquenniad the deficiency was only 0·40 bushels *per head*, or nearly 6 per cent.; while in the last six years the deficiency rose to 1·80 bushels *per head*; thus:—

SUPPLY of Wheat and Flour for Eleven Years ending Year 1890–91.

(Reduced to Wheat Bushels per Head of Population.)

	Produced locally.	Imports.	Total Supply.	Estimated	
				Excess.	Deficiency.
Year 1880-1	5·19	1·14	6·33	...	0·39
1881-2	8·21	0·01	8·20	1·48	...
1882-3	7·38	0·25	7·63	0·91	...
1883-4	5·80	0·03	5·83	...	0·89
1884-5	5·01	0·60	5·61	...	1·11
Mean of 5 years.....	6·32	0·40	6·72	...	...
Year 1885-6	3·86	2·11	5·97	...	0·54
1886-7	4·61	2·07	6·68	0·17	...
1887-8	4·74	2·45	7·19	0·68	...
1888-9	5·61	1·89	7·50	0·99	...
1889-90.....	4·94	1·16	6·10	...	0·41
1890-91.....	4·47	1·12	5·59	...	0·92
Mean of 5 years.....	4·75	1·80	6·51	...	...
Mean of 10 years	5·53	1·17	6·60		

It is now more reassuring to find that our local agriculturists as a body are beginning to grapple with the causes which have produced this decline in so important an industry, and that yearly conferences are now fixed for the consideration of all questions affecting the Agricultural and Pastoral Industries.

Seeing that there are so many conflicting elements to be taken into consideration in forming an estimate of the progress of the Farming and Pastoral Industries over the period of thirty years, we can only grasp the general results by tabulating approximately the values of all products, say at a common rate for each product. If in this way we tabulate the results of the years 1860, 1889, and 1890 at the market rates current in Hobart in the year 1889, we have a fixed measure for fairly estimating the value of the products for the respective years, and we are thereby better enabled to judge of the ultimate tendency and progress being made from a commercial point of view. It is not to be expected that such an estimate can be depended upon for giving absolutely accurate results, but for relative purposes it may be confidently trusted ; and even as regards absolute accuracy, the figures will not be far from the truth as regards the value of products when placed in the market.

SUMMARY showing approximately the Relative Value of Agricultural and Pastoral Produce for the Years 1859-1860, 1889-1890, and 1890-1891.

	1859-60.	1889-90.	1890-91.
Agricultural Produce—	£	£	£
Wheat	353,974	189,160	128,596
Barley	28,487	23,754	22,464
Oats	127,382	157,978	71,416
Other Cereals	21,485	39,238	41,272
Potatoes	125,958	271,031	274,342
Other Root Crops	62,889	104,376	82,401
Hay	276,520	289,100	208,084
Hops	...	34,252	21,631
Apples	29,702	125,753	92,246
Pears	6061	8203	6381
Other Fruits Other Garden and Orchard Produce	10,083	12,040	13,918
Total Agricultural Produce	1,042,541	1,254,885	962,751
Pastoral Produce—			
Milk, Butter, and Cheese	168,440	302,630	331,890
Value of Surplus Stock produced—			
Cattle	86,157	168,750	171,315
Sheep	80,520	145,446	151,805
Pigs	78,225	146,680	204,280
Horses	16,824	23,804	24,928
Wool exported and consumed locally	370,427	295,042	436,173
Live Stock exported	11,061	60,472	94,114
Total Pastoral Produce	811,654	1,142,824	1,414,505
Grand Total	1,854,195	2,397,709	2,377,256
Grand Total per Head of Population	21·13	16·87	16·30
Agricultural Produce ditto	11·88	8·83	6·64
Pastoral Produce ditto	9·25	8·04	9·76

As population increases in a young country, the non-agricultural element assumes larger proportions relatively to the whole. It cannot be expected, therefore, that the rate *per head* of Agricultural and Pastoral products in the later years will be equal to that of the earlier and more purely Agricultural period.

Thus, the value per head of the combined products in 1891 is £16·30, being less than in 1860 by £4·83 per head. Nevertheless, it is evident that Pastoral products have actually increased relatively and absolutely, being £0·51 per head above the year 1860. This, again, bears out the general conclusion that the backward state of some forms of Agriculture have been counterbalanced to a great extent by greater enterprise in Pastoral matters.

Decline in Wheat-growing.

The decline in wheat-growing is not due to the absence of local skill, nor to the want of facilities as regards local means of transit by road or rail, but primarily to the narrowed or doubtful profits consequent upon the vastly

increasing area now devoted to the culture of wheat in other parts of the world (America especially), resulting in the keenest competition in the world's great centre of wheat consumption—England. This competition is so keen, and has been so growing in intensity, that the English farmer has been compelled, year by year, to curtail his acreage in wheat in favour of foreign producers, even although the former has the advantage of a much greater yield and the closest proximity to the world's market.

The following table, partly extracted and partly calculated from Statistical Abstracts, 1880 to 1889, prepared by Mr. Giffen, of the Board of Trade Department, England, shows most significantly the progress, direction, and extent of this competition :—

Quantities of Wheat and Wheat Meal and Flour Imported into the United Kingdom during the Years 1875–1886–90.

Countries.	Wheat-total of Grain and Flour in equivalent weight of Grain (1 cwt. of Wheat Flour equal to 1¼ cwts. of Wheat in Grain).							
	1875.	1885.	1886.	1887.	1888.	1889.	1890.	
	1000 cwts.	1000 cwts.	1000 cwts.	1000 cwts.	1000 cwts.	1000 cwts.	1000 cwts.	Per cent. to total.
Wheat and Wheat Meal and Flour—								
Russia—Northern Ports	1688	4615	1709	723	733	902	2432	2·95
Southern Ports	8470	7473	2042	4837	21,036	20,737	17,229	20·92
Sweden	100	58	18	—	—	2	3	—
Denmark	832	162	118	92	250	163	85	·10
Germany	6614	3842	2399	2347	4794	4141	2344	2·85
France	3574	249	155	201	156	252	143	·17
Spain	157	—	—	—	—	—	—	—
Austrian Territories	420	2478	1873	1908	2793	3021	1921	2·33
Roumania	352	399	290	589	1418	2839	4667	5·67
Turkey	961	653	250	2	161	673	904	1·10
Bulgaria		670	178	65	293	634	351	·43
Egypt	2112	110	41	198	737	327	428	·52
British North America	4070	2114	4108	5263	2165	2793	2425	2·94
United States—								
Atlantic Ports	17,206	23,551	26,823	39,114	21,892	17,152	21,329	25·89
Pacific Ports	9166	16,159	13,059	11,498	9955	13,806	12,575	15·26
Chile	903	1623	1707	2211	1486	573	24	·03
British India	1334	12,176	11,027	8513	8166	9218	9112	11·06
Australasia	1266	5452	836	1357	2386	1452	3240	3·93
Other Countries	323	550	389	1295	2005	244	3171	3·85
Total	59,547	82,332	67,022	80,212	80,426	78,930	82,382	100·00
All Grain Imports	107,522	144,012	126,061	140,966	147,161	149,340	155,621	—
	£	£	£	£	£	£	£	
Value of all Grain Imports	53,087	53,261	43,548	48,291	51,257	51,186	53,485	—

The significant consideration is that in 1870 the United States of America only exported to England 14 million cwts. of wheat and flour, or about 40 per cent. of all imports to England, while in 1890 they exported 33·9 million cwts., being 41·15 per cent. of all imports of wheaten food in England. This, of course, could only be effected by a continual cheapening of wheat to the consumer, and a narrowing profit to producers, the weaker going to the wall. That the gradual cheapening of wheat in the English market has affected, and must continue to affect, English as well as Australasian producers, may be gathered from Mr. Giffen's tables of the English wheat acreage, and the average price of wheat in England during the period 1870 to 1890.

Year.	United States' Supply of Wheat.	Population United Kingdom.	Acreage in Wheat, Great Britain.	English average Price of Wheat per Imperial Quarter.
	Million cwts.	Thousands.	Thousand acres.	*s.* *d.*
1870.....	14	31,205	3500	46 10
1871.....	15·5	31,555	3571	56 8
1872.....	9·6	31,874	3598	57 0
1873.....	21·7	32,177	3490	58 5
1874.....	27·1	32,501	3630	55 8
1875.....	26·3	32,838	3342	45 2
1876.....	22·2	33,199	3125	46 2
1877.....	23·5	33,575	3321	56 9
1878.....	33·5	33,943	3382	46 5
1879.....	44·6	34,302	3056	43 10
1880.....	44·7	34,622	3066	44 4
1881.....	45·6	34,934	2967	45 4
1882.....	44·8	35,208	3164	45 1
1883.....	40·2	35,446	2713	41 7
1884.....	35·5	35,718	2749	35 8
1885.....	38·9	36,007	2553	32 10
1886.....	38·9	36,303	2359	31 0
1887.....	49·1	36,586	2388	32 6
1888.....	30·3	36,865	2660	31 10
1889.....	31·0	37,160	2545	29 9
1890.....	33·9	37,464	2484	31 11

Thus, the most striking illustration is appreciated by noting that the United States' supply of wheat increased from 14 millions of cwts. in 1870 to 33·9 millions of cwts. in 1890, while the English acreage under wheat declined from 3,500,543 acres in 1870 to 2,484,000 in 1890, notwithstanding an increase during this period of 6,259,000 persons to her population. These reasons are also only too apparent as regards the gradual fall in price from 58*s.* 5*d.* per quarter in 1873 to 31*s.* 11*d.* in 1890, *i.e.*, a reduction equal to nearly 45·37 per cent. in seventeen years.

When we consider all these things, it is not a matter for surprise that Australasia should begin to realise the straitening effects of such competition, and that her production of wheat should have declined very considerably since 1883. New Zealand, however, has discerned her danger, and has bravely faced the difficulty by turning her attention more vigorously to the production and exportation of Fresh Meat. This is evidenced by the fact that, although Australia and New Zealand only exported £498,783 of Fresh and Preserved Meats to ex-Australian markets in 1882, in 1890 these exports reached a sum of £1,527,345. No doubt, in other products a vigorous effort will be made by the producers of Australasia in order to cope with the altered circumstances of competition, and the Tasmanian producer may not stand

idly by. Local producers will watch with interest the results of this struggle, and will probably set themselves to imitate neighbouring Colonies in what they appear to be successful.

Further particulars regarding the exportation of Grain and Meat of all kinds are given in the following summaries :—

VALUE of Grain and Flour of all kinds exported to ex-Australian Ports, 1886–90.

From	1886.	1887.	1888.	1889.	1890.
	£	£	£	£	£
South Australia	69,669	209,138	558,188	214,759	1,542,525
Victoria	112,894	233,238	212,778	138,979	165,249
New South Wales	750	6416	12,423	—	49,408
Tasmania	—	—	—	—	—
New Zealand	142,332	85,985	256,264	279,306	731,004
	325,645	534,777	849,653	633,044	2,490,212

VALUE of Meat of all kinds exported to ex-Australian Markets, Years 1886–90.

From	1886.	1887.	1888.	1889.	1890.
	£	£	£	£	£
South Australia	—	—	2912	550	—
Victoria	78,853	57,070	7407	16,107	23,634
New South Wales	98,746	311,488	275,609	126,828	167,918
Queensland	8	25,465	454	4568	122,566
New Zealand	801,200	911,603	1,084,827	1,416,972	1,223,799
	978,807	1,305,626	1,371,209	1,565,025	1,527,345

Notwithstandlng what has been said, it certainly seems to be far from creditable to agricultural enterprise in Tasmania that Victoria, with less fertile soil, showing a very much lower average yield per acre, should, during the last season, have produced 12,751,295 bushels of wheat, equal to 11·40 bushels per head, while Tasmania, with its much higher yield per acre, only produced 642,980 bushels, or 4·47 bushels per head. This is inexplicable, when it is considered that Victoria, during 1884, exported a surplus of breadstuffs, principally to England, equal to about 126 per cent. above that which is found to be necessary for her own local requirements for food and seed, while Tasmania, on the other hand, shows that her total produce of breadstuffs for the same period is nearly 30 per cent. below the average local consumption for food and seed.

To convert lands devoted to agriculture to pastoral purposes may be forced upon our farmers by the greatly reduced prices for wheat, &c., so far as a surplus for export is concerned ; but surely the home market should be supplied by local agriculturists!

It is certainly a great injury to the Colony to diminish in any way its agricultural areas in favour of pastoral pursuits, and thereby deprive the Colony of its agricultural population.

The extent of the principal crops grown in the various Colonies, together with comparison as regards the previous year, are given in the following table :—

YIELD of Wheat, Barley, Oats, and Potatoes in the Australasian Colonies during Seasons 1890 and 1889.

	1890.				1889.	
	No. of bushels.	Per cent. to Total.	Per acre.	Per head.	Per acre.	Per head.
			bushels.	bushels.	bushels.	bushels.
Wheat—						
Victoria	12,751,295	38·83	11·13	11·40	9·75	10·41
New South Wales	3,649,216	11·11	10·95	3·31	15·65	5·95
Queensland	207,990	·63	20·02	·50	15·88	0·34
South Australia	9,399,389	28·62	5·62	29·32	7·91	46·22
Western Australia	465,025	1·42	13·75	10·31	14·00	11·55
Tasmania	642,980	1·96	16·29	4·47	15·43	5·08
New Zealand	5,723,610	17·43	18·98	9·15	25·15	13·76
All	32,839,505	100·00	9·28	8·71	10·98	11·38
Oats—						
Victoria	4,919,325	31·12	22·25	4·40	23·87	5·11
New South Wales	256,659	1·62	18·20	0·23	24·30	0·49
Queensland	8967	·06	21·82	0·02	19·41	0·04
South Australia	116,229	·74	9·32	0·36	12·77	0·42
Western Australia	37,693	·24	19·48	0·84	20·00	0·96
Tasmania	519,395	3·29	25·04	3·61	23·75	7·72
New Zealand	9,947,036	62·93	28·73	15·90	32·09	22·28
All	15,805,304	100·00	25·62	4·19	28·72	5·68

Barley—						
Victoria	1,571,599	56·38	17·91	1·41	20·18	1·66
New South Wales	81,383	2·92	16·48	0·07	20·79	0·10
Queensland	12,673	0·45	21·70	0·03	21·24	0·07
South Australia	175,583	6·30	12·13	0·55	12·54	0·78
Western Australia	87,813	3·15	16·50	1·95	17·00	2·16
Tasmania	99,842	3·58	22·86	0·69	28·60	0·71
New Zealand	758,833	27·22	23·17	1·21	31·67	2·19
All	2,787,726	100·00	18·56	0·74	22·19	1·01
Potatoes—	tons.	tons.	tons.	tons.	tons.	tons.
Victoria	204,155	36·28	3·79	0·18	3·33	0·14
New South Wales	52,791	9·38	2·72	0·15	2·85	0·05
Queensland	28,810	5·12	3·20	0·07	3·60	0·07
South Australia	23,963	4·26	3·62	0·07	3·74	0·07
Western Australia	1655	0·30	3·24	0·04	3·00	0·03
Tasmania	73,158	13·00	3·63	0·51	4·25	0·49
New Zealand	178,121	31·66	5·45	0·29	5·22	0·26
All	562,653	100·00	3·96	0·15	3·88	0·13

The prices ruling in ex-Australasian markets, chiefly England, as already discussed, must determine the immediate future of the progress of agriculture throughout Australasia. If the competition of the corn-producing centres of the world (especially America, Russia, and India) still further lower the English prices, the prospects of agriculture in Australasia will be affected most seriously, seeing that distance, rates of wages, and average freight weigh in the balance so disadvantageously.

The yearly variation in the surplus of breadstuffs exported to the United Kingdom from Australasia can scarcely have any influence upon the English market for years to come. During 1890 the whole of the wheat, flour, and other kinds of grain exported from Australasia to the United Kingdom, although equal to 3,240,000 cwts. of wheaten flour, only represented 3·93 per cent. of the British imports of this class. Of the 82,382,000 cwts. imported into the United Kingdom during 1890, the following shows the percentage proportion contributed by the principal countries: viz.—United States, 41·15; Russia, 23·87; India, 11·06; Germany, 2·85; Austrian Territories, 2·33; Australasia, 3·93; British North America, 2·94; France, ·17; Chili, ·03; Roumania, 5·67; Egypt, ·52; Bulgaria, ·43; Denmark, ·10; Turkey, 1·10; and all other countries, 3·85.

Australasia might still double her export without producing any material influence upon English market prices. The seasonal yield variation in the United States must continue for some time to be the principal regulating influence.

The following series of Tables, in respect of Wheat, show in the order of importance the producing powers of each Colony for 1890, together with the figures relating to the preceding five years :—

YIELD of Wheat per Acre.

Colony.	1885.	1886.	1887.	1888.	1889.	1890.
	bushels.	bushels.	bushels.	bushels.	bushels.	bushels.
New Zealand	24·40	24·88	26·37	24·22	25·15	18·98
Queensland	5·11	3·12	22·10	0·89	15·88	20·02
New South Wales	10·32	17·37	12·06	4·76	15·65	10·95
Tasmania	17·32	17·91	16·42	20·15	15·43	16·29
Western Australia	11·50	12·00	9·14	10·50	14·00	13·75
Victoria	8·99	11·49	10·81	7·10	9·75	11·13
South Australia ...	7·53*	7·53*	9·75	3·85	7·91	5·62
All	9·13	10·90	11·87	7·34	10·98	9·28

Absolute Yield of Wheat.

South Australia ..	14,621,755*	14,621,755*	19,012,500	6,187,000	14,577,358	9,399,389
Victoria	9,170,538	12,100,036	13,328,765	8,647,709	11,495,720	12,751,295
New Zealand.....	4,242,285	6,297,638	9,424,059	8,770,246	8,448,506	5,723,610
New South Wales	2,733,133	5,868,844	4,695,849	1,450,503	6,570,335	3,649,216
Tasmania	524,353	632,573	675,069	819,497	756,639	642,980
WesternAustralia	339,376	288,516	269,611	322,759	497,238	465,025
Queensland	51,598	21,221	182,308	8263	134,335	207,990
All	31,683,038	39,830,583	47,588,161	26,205,977	42,480,131	32,839,505

* Figures for 1884 repeated as no information is available for these years.

Yield of Wheat per Square Mile of Territory.

Colony.	1885.	1886.	1887.	1888.	1889.	1890.
	bushels	bushels	bushels	bushels	bushels	bushels
Victoria	104·35	137·68	151·65	98·40	130·81	145·09
New Zealand	40·63	60·32	90·59	83·95	80·87	54·79
Tasmania	20·00	24·13	25·75	31·26	28·86	24·53
New South Wales	8·80	18·89	15·11	4·67	11·15	11·75
South Australia	16·18*	16·18*	21·04	6·85	26·13	10·40
Western Australia	·32	·27	·25	·30	·47	·44
Queensland	·08	·03	·27	·01	·20	·31
All	—	—	—	—	—	—

Yield of Wheat per Head of Population.

South Australia	45·76	45·76*	60·67	19·68	46·22	29·32
New Zealand	7·51	10·81	15·80	14·49	13·76	9·15
Western Australia	9·96	7·75	6·47	7·67	11·55	10·31
Victoria	9·41	12·26	13·07	8·14	10·41	11·40
New South Wales	2·94	5·98	4·59	1·36	5·95	3·31
Tasmania	3·97	4·67	4·83	5·68	5·08	4·47
Queensland	·16	·06	·51	·02	·34	·50
All	9·67	11·83	13·64	7·26	11·38	8·71

* Figures for 1884-5.

GRAIN Production in Seven Colonies of Australasia, Years 1880, 1887–1890.

Acreage under Crop—(000's omitted).

Grain.	1880.	1887.	1888.	1889.	1890.	Average.
Wheat	3377	4008	3570	3870	3537	3672
Oats	393	586	616	738	617	590
Barley	153	100	158	169	150	146
Maize	..	..	..	..	307	307
Other Cereals	..	..	..	..	60	60
Total Grain	..	..	..	..	4671	4775

Produce, Bushels—(000's omitted).

Grain—						
Wheat	31,577	47,588	26,206	42,480	32,840	36,138
Oats	10,126	15,982	14,971	21,198	15,805	15,616
Barley	2918	2167	2973	3759	2788	2921
Maize	..	..	..	..	8902	8902
Other Cereals	..	..	..	..	1369	1369
Total Grain	..	..	..	..	61,704	64,946

Produce per Head and per Acre.

Grain.	Per Head.	Per Acre.	Per Head.	Per Acre.	Per Head.	Per Acre.	Per Head.	Per Acre.	Per Head.	Per Acre.	Per Head.	Per Acre.
Wheat	11·59	9·35	13·64	11·87	7·26	7·34	11·38	10·98	8·71	9·28	11·09	10·30
Oats	3·72	25·79	4·58	27·29	4·15	24·29	5·68	28·72	4·19	25·62	4·79	26·47
Barley	1·07	19·12	·62	21·70	·82	18·87	1·01	22·19	·74	18·56	·90	20·05
Maize	..	..	..	..	..	..	..	..	2·36	28·99	2·73	28·99
Other Cereals	..	..	..	..	..	..	..	..	·36	22·82	·42	22·82
Total Grain	..	..	..	..	..	..	..	..	16·37	13·21	19·93	13·60

Food imported into the United Kingdom in the Years 1875 and 1890.

Food.		Quantity.		Value. £000's omitted.		Per cent. to Value of Total Imports.	
		1875.	1890.	1875.	1890.	1875.	1890.
Meat—	Quantity Units.			£	£		
Animals	No. thousands	1·249	10·01	7071	11,202		
Bacon and Hams	Million cwts.	2·64	5·00	6982	9847		
Beef	,,	·22	2·13	454	4305		
Meat, various	,,	·32	2·50	1011	5622		
Pork	,,	·27	·30	590	451		
Poultry, Game, &c.	,,	—	—	328	896		
Fish	,,	·84	2·30	1267	2811		
Total Meat		—	—	17,703	35,134	4·72	8·35
Butter, Cheese, &c.—							
Butter, Margarine	Million cwts.	1·47	3·11	8502	13,682		
Cheese	,,	1·63	2·14	4710	4975		
Eggs	Thousands	741	1235	2560	3429		
Lard	Million cwts.	·54	1·27	1635	2092		
Total Butter, Cheese, &c.		—	—	17,407	24,178	4·64	5·75
Grain—							
Wheat	Million cwts.	51·9	60·5	27,510	23,584		
Barley	,,	11·1	16·7	4636	4986		
Oats	,,	12·4	12·7	5407	3909		
Maize	,,	20·4	43·4	8120	9863		
Other kinds	,,	5·5	5·9	2483	1804		
Flour of Wheat	,,	6·1	15·8	4780	9074		
,, of other kinds	,,	·1	·6	61	265		
	,,	107·5	155·6	53,087	53,485	14·15	12·71
Sundry kinds of Food & Stimulants—							
Rice		—	—	3034	2548		
Potatoes	Million cwts.	4·70	1·94	1071	714		
Fruit	,,	—	—	5297	7307		
Hops	,,	·25	·19	1189	878		
Seedcake	,,	3·6	5·65	1834	1743		
Onions	Million Bshls.	1·70	3·87	321	724		
Seeds, various		—	—	6997	5126		
Confectionery and Sucades	Million cwts.	·10	·51	375	1188		
Cocoa	,, lbs.	15·87	28·11	430	887		
Coffee	,, cwts.	1·59	·86	7513	4004		
Tea	,, lbs.	197·51	223·49	13,767	9920		
Sugar	,, cwts.	19·89	25·26	21,969	18,260		
Spices	,, lbs.	46·29	31·11	1281	1284		
Tobacco	,,	52·29	69·41	2952	3508		
Total Sundries		—	—	68,030	58,091	18·14	13·81
Total Food Imports		—	—	156,227	170,888	41·65	40·62
Total Imports		—	—	375,155	420,632	100·00	100·00

Note.—Although the Import Values between 1875 and 1890 indicate £14,661,000 of an increase, this does not show the real increase in imported articles of food, because the prices have fallen so greatly in this interval. Prices of Grain alone show a fall of 31·70 per cent. If the prices of Grain in 1890 were the same as in 1875, the imports of Grain in 1890 would represent about £77,272,000.

PRODUCTION and Consumption of all kinds of Grain in various Countries (Rice excepted) Years 1887–88.

	ABSOLUTE.							RELATIVE.						
	Million acres.			Million bushels (grain).					Acres per head.		Bushels per head.			
	Grain crops.	All cultivation.	Total area.	Produced.	Consumed.	Surplus.	Deficiency.	Percentage of Cultivated Area to Total Area.	In Grain crops.	All cultivation.	Produced Grain.	Consumed.	Surplus.	Deficiency.
Europe.														
United Kingdom	9·57	48·15	77·80	311	602	..	291	61·75	·25	1·27	8·24	16·00	..	7·76
France	36·47	90·06	130·56	729	783	..	54	68·97	·96	2·36	19·13	20·55	..	1·42
Germany	34·89	64·99	133·34	706	780	..	74	48·70	·69	1·32	14·29	15·78	..	1·49
Russia (proper)	159·80	288·00	1244·36	1854	1640	214	..	23·15	1·96	3·52	22·69	20·07	2·62	..
Austria	37·43	74·45	143·80	687	670	17	..	51·77	·91	1·81	16·69	16·27	0·42	..
Italy	14·76	27·42	70·79	225	260	..	35	38·73	·66	·92	7·27	8·40	..	1·13
Spain	18·00	32·00	121·00	300	305	..	5	26·45	1·03	1·82	17·10	17·38	..	0·28
Portugal	2·20	4·59	21·76	40	45	..	5	21·09	·47	0·97	8·49	9·55	..	1·06
Sweden	3·98	12·31	100·30	104	110	..	6	12·28	·84	2·59	21·97	23·06	..	1·99
Norway	0·47	2·80	76·71	17	30	..	13	3·64	·24	1·40	8·50	15·00	..	6·50
Denmark	2·92	6·92	9·35	84	74	10	..	73·98	1·38	3·28	38·53	33·94	4·59	..
Holland	1·38	4·94	7·82	40	63	..	23	63·15	·34	1·23	8·79	13·85	..	5·06
Belgium	2·39	5·47	7·28	75	107	..	32	75·21	·40	·93	12·31	17·57	..	5·26
Switzerland	0·90	5·08	10·18	20	35	..	15	49·90	·31	2·05	6·85	11·99	..	5·14
Greece	2·00	7·04	16·00	20	27	..	7	44·00	·96	3·37	9·56	12·33	..	2·77
Servia	1·16	5·17	12·16	15	15	..	..	42·51	·55	2·46	7·14	7·14	..	..
Roumania	7·50	15·70	30·91	120	60	60	..	50·80	1·36	2·86	21·82	10·91	10·91	..
Turkey, &c.*	12·60	25·20*	..	275	245	30	..	..	..	..	..	..	..	..
Europe	348·22	720·29	..	5622	5851	..	229	31·39	..	..	..	..	..	..
United States	141·82	201·00	2291·35	2586	2400	186	..	8·77	2·27	3·21	41·30	38·32	2·98	..
Canada	6·51	9·22	2222·40	148	118	30	..	·42	1·35	1·91	30·65	24·43	6·22	..
Australasia	4·30	9·25	2023·33	51†	40	11	..	·46	1·13	2·42	13·39	10·50	2·89	..
Argentina	5·53	7·43	741·20	50	25	25	..	1·00	1·32	1·77	11·90	5·95	5·95	..
India*	112·12	154·80	1056·20	250	223	27	..	..	..	..	..	..	..	..
Other Countries*	..	..	..	415	465	..	50	..	..	..	..	..	..	..
TOTAL	..	..	..	9122	9122	279	279	..	..	..	..	..	..	..
*Totals (less Turkey, &c., India, and other ex-European Countries marked with an asterisk).	493·78	921·99	9492·40	8182	8189	..	7	9·71	1·21	2·25	20·00	20·02	..	0·02

† This is understated by 14 millions, as the average yield of the last ten years is about 65 million bushels.

Mr. Mulhall's latest estimate of the value of Agricultural and Pastoral Products and Capital for the countries specified, is as follows :—

		Million £.
Capital	...	23·006
Products—		
Grain	1·091	...
Meat, Dairy, and other Products...	2·857	3·948

The figures relating to quantity of grain consumed and produced per head and per acre in various countries have been computed from a table prepared by Mulhall for the year 1887–88. It will be seen that in relation to population both consumption and production of grain of all kinds vary considerably in different countries.

These differences are in part due to the varying proportion of *meat* actually consumed by the respective peoples, and partly to the varying proportion of grain consumed by cattle or utilised in the production of alcohol. The local consumption of all kinds of grain in Australasia, while much below her production, is lower than the average consumption of the United Kingdom and other European countries ; and this is due to the fact that meat is more largely consumed as an article of common food in Australasia, and also because, with trivial exceptions, grain of any kind is not cultivated for feeding cattle ; their food being largely obtained from vast areas producing indigenous grasses.

Results based upon an area of 9492 million acres, with a population of 409 millions, indicate that the present consumption of all kinds of grain (rice excepted) requires the tillage of 1·21 acres per head per year, and the supply of various wants (products of forest areas excepted) require upon the whole at least 2·25 acres per head under some form of cultivation. Probably 2·80 acres per head are utilised for the purposes of human supply if we include the vast tracts of uncultivated lands in thinly-populated countries upon which sheep and cattle graze as in Australia and South America. Belgium takes the first position as regards the extent to which cultivation (75·21 per cent.) bears to the whole available area. Canada and Australasia stand lowest, as the extent of cultivated lands as yet do not amount to ½ per cent. of their respeetive areas.

The following is a summary of countries which had either a surplus of grain for export or a deficiency to be made good by imports from other countries in the year 1887-8 :—

Exporters of Grain.			Importers of Grain.		
	Million Bushels.	Per cent. to Local Production.		Million Bushels.	Per cent. to Local Production.
Russia	214	11·54	United Kingdom....	291	93·58
United States	186	7·19	Germany	74	10·48
Roumania	60	50·00	France	54	7·41
Canada	30	20·26	Italy	35	15·55
Turkey, &c.....	30	10·91	Belgium	32	42·67
India	27	10·80	Holland	23	57·50
Argentina	25	50·00	Switzerland	15	75·00
Austria.....	17	2·48	Norway.....	13	76·47
Australasia	11	21·57	Greece	7	35·00
Denmark	10	11·90	Sweden.....	6	5·77
			Spain	5	1·67
			Portugal.....	5	12·50
			Other Countries	50	12·05
All	610	6·69	All	610	6·69

Of all countries it is evident that the United Kingdom is the most deficient as regards grain supply, as she alone absorbs 47·71 per cent. of the surplus of all countries, and the quantity so absorbed represents 93·58 of her total local production.

Although Russia and the United States supply 65·57 per cent., or nearly two-thirds of the total deficiencies of various countries, yet their production requisite for home consumption is so enormous that their united surplus only represents 9·01 per cent. of their total local production.

This is the main reason why the external commerce of the United Kingdom bears so large a proportion in relation to her internal commerce and in relation to the external trade per head of other large countries.

The reverse of this is illustrated by the external trade of Russia and the United States, which, owing to the abundance of local supply of food products, is comparatively small in relation to internal trade, and is low *per head* of population as compared with large populous countries whose local sources of food supply are below local requirements.

Upon the whole these figures clearly demonstrate that the amount of *external trade*, relative or absolute, is of itself neither a safe criterion of either the total commerce or production of a country, nor of its material wealth.

Live Stock.

The number of horses, cattle, sheep, &c., returned on 31st March, 1891, and comparisons with the first and last years of the decade 1880-89, and with the average of decade 1851-60, are given in the following Table :—

	1890.	1889.	1881.	Mean of Decade 1851-60.	1890. Percentage Increase or Decrease as compared with—		
					1889.	1881.	Mean of Decade 1851-60.
Horses	31,165	29,778	25,607	18,820	+ 4·66	+ 21·31	+ 58·23
Cattle	162,440	150,004	130,526	86,625	+ 8·29	+ 24·45	+ 87·52
Sheep	1,619,256	1,551,429	1,861,857	1,851,444	+ 4·37	— 13·03	— 12·59
Pigs	81,716	58,632	49,660	29,053	+ 39·37	+ 64·55	+ 181·26

With respect to Live Stock, it will be observed that, as compared with the former year, there is an increase under each of the following heads, viz. :—Horses (1387), Cattle (12,436), Sheep (67,827), and Pigs (23,804).

Rabbits, fluke, and the increasing tendency to fatten stock for market are the reasons generally assigned for the decrease in Sheep. No doubt, however, the greater extent of land taken up in respect of Cattle and Pigs must also be considered.

The number of Cows kept for dairy purposes has increased from 30,263 to 33,189, that is, an increase of 2926, or 9·66 per cent., in one year.

In accordance with suggestions made by Messrs. J. W. Norton-Smith, W. H. D. Archer, and J. W. Falkiner, the Statistics relating to Live Stock have been improved by ascertaining approximately the number of Horses, Cattle, and Sheep living over one year old.

According to the returns received the following is an abstract of the percentage of Horses, Sheep, and Cattle for ages under one year :—

	Per-centage under one year.				
	1890.	**1889.**	**1888.**	**1887.**	**1886.**
Horses	8·59	7·90	8·70	10·38	10·7
Cattle	21·42	18·60	16·83	18·75	19·1
Sheep	24·50	22·01	17·57	20·77	18·4

In the following table is shown the present stock-carrying capacity of Tasmania as compared with the neighbouring Colonies :—

LIVE Stock per Square Mile, 1890.

	Horses.	Cattle.	Sheep.
Victoria	4·97	20·29	144·92
New South Wales	1·43	6·14	180·19
Queensland	0·55	8·31	26·94
South Australia	0·21	0·40	7·75
Western Australia	0·04	0·12	2·38
New Zealand	1·79	8·57	155·60
Tasmania	1·19	6·20	61·77
TOTAL	0·54	3·42	36·08

Here, again, Tasmania's relative position is far from creditable. As regards horses, cattle, and sheep she takes up the 4th position only.

The order of each colony as regards stock-carrying capacity is as follows :—

Horses.—(1) Victoria; (2) New Zealand; (3) New South Wales; (4) Tasmania; (5) Queensland; (6) South Australia; (7) Western Australia.

Cattle.—(1) Victoria; (2) New Zealand; (3) Queensland; (4) Tasmania; (5) New South Wales; (6) South Australia; (7) Western Australia.

Sheep.—(1) New South Wales; (2) New Zealand; (3) Victoria; (4) Tasmania; (5) Queensland; (6) South Australia; (7) Western Australia.

As regards absolute number, the following are the relative positions for 1890 in respect of Horses, Cattle, and Sheep :—

Horses.—(1) New South Wales; (2) Victoria; (3) Queensland; (4) South Australia; (5) New Zealand; (6) Western Australia; (7) Tasmania.

Cattle.—(1) Queensland; (2) New South Wales; (3) Victoria; (4) New Zealand; (5) South Australia; (6) Tasmania; (7) Western Australia.

Sheep.—(1) New South Wales; (2) Queensland; (3) New Zealand; (4) Victoria; (5) South Australia; (6) Western Australia; (7) Tasmania.

Live Stock—Number in the Colony.—Decennial Return.

YEAR.	*Horses.*	*Horned Cattle,* (including Calves.)	*Sheep,** (including Lambs.)	*Goats.*	*Mules and Asses.*	*Pigs.*
1881–2	25,607	130,526	1,861,857	1760	13	49,660
1882–3	25,857	122,504	1,845,455	2109	18	47,826
1883–4	26,840	130,525	1,831,069	1860	21	55,774
1884–5	27,188	128,834	1,720,027	1707	17	57,303
1885–6	28,610	138,642	1,648,627	1797	15	67,395
1886–7	29,684	148,665	1,609,046	1832	15	73,118
1887–8	29,528	147,092	1,547,242	1693	13	52,408
1888–9	29,238	142,019	1,430,065	1586	18	43,227
1889–90	29,778	150,004	1,551,429	1564	23	58,632
1890–1	31,165	162,440	1,619,256	1742	21	81,716

* Including Sheep on Islands in Bass' Straits.

Live Stock Imported and Slaughtered.

The following is a summary of the Live Stock imported, almost wholly for slaughtering purposes, together with the number of animals actually slaughtered in Hobart and Launceston, during the years 1870 and 1881 to 1890 :—

YEAR.	SHEEP AND LAMBS.		HORNED CATTLE AND CALVES.		PIGS.	
	Imported.	*Slaughtered.**	*Imported.*	*Slaughtered.**	*Imported.*	*Slaughtered.**
1870.....	17,515	89,585	1653	7196	..	3863
1881.....	11,458	87,473	1953	9131	..	5054
1882.....	4795	89,890	927	9610	44	5476
1883.....	10,967	96,015	943	10,067	8	6077
1884.....	27,760	95,098	462	9718	4	7897
1885.....	65,339	102,493	1353	9544	4	7789
1886.....	52,088	106,074	601	9393	5	9408
1887.....	50,790	101,439	1907	8735	4	9359
1888.....	76,097	99,541	2975	9418	1	7917
1889.....	57,157	99,841	2683	9354	1	6026
1890.....	74,285	96,437	3657	9917	702	8836

* At Hobart and Launceston only.

It is very difficult to arrive at a true estimate of the consumption of meat in all Tasmania. The only figures obtainable of any value are those relating to the consumption of meat in Hobart and Launceston. From computations made it is estimated that there are killed each year for home consumption—

75 cattle and calves per 1000 persons.
3340 sheep and lambs per 1000 persons.

It is apparent, therefore, so far as sheep are concerned, that local consumption still slightly exceeds the powers of local producers to meet local needs, for these figures indicate that whenever the natural increase falls below 7·5 per cent. in cattle and 25·5 per cent. in sheep, as compared with their respective permanent stocks living in any year, then meat must be imported, or the permanent stocks will dwindle away. This percentage, too, is only reckoned upon the wants of existing population. If the same percentage of meat be consumed by the population of each succeeding year, then the permanent stock of sheep and cattle must increase correspondingly; otherwise importations must supply deficiencies, or the percentage of natural increase raised to the level of current local wants.

Stud Sheep Exported.

The breeding of stud sheep for export to other Colonies has become a most profitable branch of the pastoral industry. The very high prices which these sheep command in the neighbouring Colonies is highly complimentary to the skill of Tasmanian stock-breeders. The following abstract for the last ten years shows the rapid increase of this branch of industry :—

Year.	Stud Sheep exported.	Value.	Value per Head.
	No.	£	£ s. d.
1881	1306	38,305	29 6 7
1882	1937	34,012	17 11 2
1883	2913	62,275	21 7 6
1884	2966	66,743	22 10 1
1885	3249	58,105	17 17 8
1886	2207	32,689	14 16 3
1887	4005	54,337	13 11 4
1888	4140	56,045	13 10 8
1889	4358	58,932	13 10 6
1890	4604	79,919	17 7 2

Wool.

The clip of Wool for the year 1890, as ascertained by Exports during the 12 months ending 30th November, 1891, is estimated to be 8,798,420 lbs., and the declared value is stated to be £414,467, equal to 11·31*d.* per lb. It is doubtful, however, whether the same mode of declaring values is observed by all exporters, and therefore too great reliance should not be placed upon the varying rate as deduced from total weights and values of any single year. The Wool actually exported during the year 1890, irrespective of the clip of any particular season, was 8,984,281 lbs., and the nominal export value is stated to be £419,173. The four following tables give information regarding Wool and Wool exports, the yearly average for each quinquennial from 1851 to 1880 inclusive, and the actual for the years 1881 to 1889.

Sheep-washing and Shearing.

	1890.	1889.	1890 Compared with previous Year.	
			Increase.	Decrease.
Number of Sheep-owners who washed their sheep before shearing	71	28	43	...
Number of Sheep-owners who sheared their Sheep in the grease	1929	2048	...	119

Number of Schedules received, &c.

	1890-1.	1889-90.	1890-1 Compared with previous Year.	
			Increase.	Decrease.
Number of Persons from whom Agricultural and Live Stock Returns were obtained	7931	8223	...	292
Number of Persons from whom Live Stock Returns only were obtained	2466	2247	219	...
Number of Persons from whom Agricultural Returns only were obtained	947	179	768	...
Wheat reaped by Machine ..... (No. of Acres)	36,511	45,212	...	8701

It is very probable that these figures are less than the actual number, the returns of the Local Collectors, from which they are taken, being somewhat defective in regard to these particulars.

Wool exported, being the Produce of 1890.

	Quantity. lbs.		Value. £
Wool, the produce of 1890, exported in December, 1890	2,184,041	...	109,249
Wool, principally the produce of 1890, exported between 1st January and 30th November, 1891	6,614,379	...	305,218
	8,798,420		414,467

Yield of Wool, 1851-1890—Average per Year.

Period.	No. of Sheep.	Wool exported, lbs.	Value, £.	Wool exported per Sheep, lbs.	Nominal Value of Wool exported.	
					Per Sheep.	Per lb.
					£ s. d.	£ s. d.
1851–5	2,008,502*	5,508,567	305,091	2·79	0 3 0·46	0 1 1·29
1856–60	1,694,386	5,132,539	389,907	3·02	0 4 7·22	0 1 3·89
1861–65	1,733,158	4,781,396	379,624	2·76	0 4 4·57	0 1 7·06
1866–70	1,583,298	5,068,373	342,502	3·20	0 4 3·91	0 1 4·22
1871–75	1,525,105	5,349,369	366,105	3·44	0 4 9·61	0 1 4·45
1876–80	1,806,336	7,757,561	478,225	4·23	0 5 3·54	0 1 2·80
1881	1,847,479	8,269,724	498,400	4·47	0 5 4·75	0 1 2·46
1882	1,845,455	7,748,500	432,768	4·19	0 4 8·28	0 1 1·40
1883	1,831,069	8,257,765	450,367	4·51	0 4 11·03	0 1 1·08
1884	1,720,027	8,215,101	453,567	4·78	0 5 3·29	0 1 1·25
1885	1,648,627	5,774,142	260,480	3·50	0 3 1·92	0 0 10·83
1886	1,609,046	8,175,780	310,934	5·08	0 3 10·38	0 0 9·13
1887	1,547,242	9,740,200	415,425	6·30	0 5 4·44	0 0 10·24
1888	1,430,065	6,977,000	306,930	4·88	0 4 3·51	0 0 10·56
1889	1,551,429	6,240,900	283,237	4·02	0 3 7·81	0 0 10·89
1890	1,619,256	8,984,281	419,173	5·55	0 5 2·13	0 0 11·19

* It is probable that the number of sheep during these years may have been over-estimated. The quantity of wool, and the price *per sheep*, favour this view.

Mines and Quarries.—*Gold Mining.*

The following is an abstract of the results of Gold Mining during last Decade:—

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
Average number of persons employed	1286	1591	1433	1080	868	837	824	893	1128	1009
Approximate value of mining plant £	84,600	110,600	112,100	98,650	93,600	93,600	93,675	100,950	99,975	154,145
Gold produced { Quantity ozs.	56,693	49,122	46,578	42,340	41,241	31,015	42,609	39,611	32,333	23,451
Gold produced { Value £	216,901	187,337	176,442	160,404	155,309	117,250	158,533	147,154	119,703	87,114
Gold exported { Quantity ozs.	54,348	41,277	45,052	34,848	37,498	37,757	37,252	33,560	33,234	23,107
Gold exported { Value £	211,253	160,910	173,561	132,010	141,319	104,402	140,584	127,562	123,486	87,085

It would appear that, as compared with the previous year, the number of persons employed has decreased by 119; yield has decreased to the extent of 8882 ozs.; and value has decreased £32,589.

The yield *per man* is given in the following table for the years 1889, 1890, and the average for the last decade.

YIELD of Gold per Man.

	1889.	1890.	Average per Year of Decade 1881-90.
Gold produced ..... £	119,703	87,114	152,615
Average of men employed per day, No.	1128	1009	1095
Average value of gold produced per man per year ..... £	106·12	86·34	139·37

Tin Mining.

The results of Tin-mining for the years 1889 and 1890 are as follows:—

	1889.			1890.		
	Alluvial Claims.	Lode Mines.	Total.	Alluvial Claims.	Lode Mines.	Total.
Persons employed .... No.	2134	83	2227	1560	32	1592
Mines or Claims ..... No.	78	4	82	113	4	117
Tin Ore produced—						
Tons	5090	460	5550	*	*	*
Value ..... £	289,718	27,426	317,144	*	*	296,771†
Value per man ..... £	135·76	330·43	142·41	*	*	186·40†

* The figures are omitted for this year owing to defects in Returns.

† The value of Tin exported has been given for this year.

The above figures can only be regarded as rough approximates. The information has been kindly furnished principally by the various Collectors of Agricultural Statistics; but, as stated by many of the latter, they have not the necessary facilities for gaining accurate information, the mining centres being so scattered and too far distant to obtain with exactness the necessary particulars without incurring a considerable expenditure. No provision has hitherto been made for the cost of collecting a complete account of mineral statistics. In the other Colonies the Mines Department has a special staff which undertakes this most necessary work.

Notwithstanding these difficulties, it may be affirmed that the above figures are substantially correct, and are fully borne out by a reference to the metallic tin actually exported during the year.

Tin exported from Tasmania, 1873-90.

	Slag.	Ore.		Metal.	Value.
	Tons.	Tons.	Average Price. £	Tons.	£
Prior to 1878.....	...	4216	...	3659	435,409
1878.....	110	1691	...	4146	316,311
1879.....	172	75	...	4316	303,203
1880.....	...	3	...	3951	341,736
1881.....	...	4	...	4120	375,775
1882.....	...	81	64·0	3589	361,046
1883.....	...	77	56·7	4045	376,446
1884.....	...	32	48·9	3675	301,423
1885.....	...	...	61·8	4242	357,587
1886.....	...	...	52·8	3776	363,364
1887.....	...	1	69·6	3606	407,857
1888.....	...	2	68·0	3775	426,326
1889.....	...	31	57·6	3764	344,941
1890.....	...	4	59·10	3214	296,761
Total for Period	282	6217		53,878	5,008,185

The lower price of tin during the past year has been the principal cause of the decline in export value as compared with the former year. The quantity exported only shows a decrease of 550 tons as compared with the quantity exported in 1889.

There is always a considerable difference between Tin Ore produced and Metallic Tin exported during any one year, owing to the fact that large quantities ot ore and metal in transit or in stock belonging to one year are exported during the following year.

Of the total Tin produced during 1890 the following is a statement of the relative importance of the various Tin-producing centres of Tasmania :—

	Tons Ore.	Per cent to Total.
North-Western Division.....	2377	50·42
North-Eastern Division.....	2337	49·58
South-Eastern Division	...	...
Western and South-Western Division	...	...
	4714	100·00

The following particulars regarding this important industry will also be of considerable interest :—

	1884.	1885.	1886.	1887.	1888.	1889.	1890.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Yearly mean price (English quotation) per ton { max. ..	82 17 1	88 14 7	99 4 2	115 0 0	120 18 11	95 5 5	96 6 3
{ min.....	80 0 10	85 2 6	96 7 11	108 9 2	115 5 7	92 0 0	93 5 0
Local quotation per unit* ..... { max....	0 13 9½	0 14 11	0 17 5¼	0 19 10¾	0 19 3½	0 16 3	0 16 8
{ min. ...	0 13 4	0 14 4¾	0 16 10½	0 18 9¼	0 18 6	0 15 8¾	0 16 2¼
Average per cent. of assay of dressed tin ore . per cent.	72·00	72·00	72·00	72·00	72·00	72·00	72·00
Average yield at smelting works..... per cent.	70·58	70·28	68·81	67·85	69·08	68·94	67·73
Mean assay of Mount Bischoff metallic tin ... per cent.	99·88	99·89	99·89	99·88	99·88	99·87	99·85

* The unit of tin is equivalent to $\frac{1}{100}$ of the ton of metallic tin.

Coal Mines.

Of Coal Mines there were ten in operation during the year 1890, which, in all, produced 53,812 tons, valued at pit-mouth at £24,215. This is above the yield of 1889 by 13,512 tons, and above the average yield of the last decade by 36,328 tons.

Now that railway communication has been extended to the Fingal District, where many important seams of Coal occur, we may expect a still more rapid development of the Coal-mining Industry in Tasmania. It is noteworthy that in the district named the output of Coal was raised from 3820 tons in 1886 to 20,509 tons in 1887, to 32,790 tons in 1889, and to 44,946 tons in 1890.

Mineral Leases, &c.

RETURN of the Number of Leases in force on the 31st December each Year, for the purpose of mining for Metals and Minerals, of the Area of Land leased, and of the Amount of Rental, for the Year 1880 and the Period 1887–1890 inclusive.

	1880.	1887.	1888.	1889.	1890.
Iron—					
No. of Leases	7	...	...	1	1
Area ..... acres	500	...	...	80	40
Rental.....£	115	...	...	20	10
Tin—					
No. of Leases.....	407	712	1091	879	757
Area ..... acres	18,976	24,599	33,845	28,557	25,091
Rental.....£	4744	6150	8461	7139	6273
Coal—					
No. of Leases.....	6	43	37	34	44
Area..... acres	1144	7802	5334	5131	6752
Rental.....£	147	975	667	641	848
Slate—					
No. of Leases.....	5	3	2	4	1
Area ..... acres	299	85	100	200	200
Rental.....£	37	11	13	25	25
Limestone—					
No. of Leases	...	...	...	1	1
Area ..... acres	...	...	...	50	50
Rental.....£	...	...	...	6	6
Bismuth—					
No. of Leases.....	1	...	...	...	3
Area ..... acres	80	...	...	...	240
Rental .....£	20	...	...	...	60
Copper—					
No. of Leases	4	...	...	...	1
Area ..... acres	560	...	...	...	80
Rental.....£	140	...	...	...	20
Freestone—					
No. of Leases.....	...	1	...	...	...
Area..... acres	...	20	...	...	...
Rental.....£	...	3	...	...	...
Galena—					
No. of Leases.....	2	...	...	...	1
Area ..... acres	41	...	...	...	65
Rental..... £	11	...	...	...	16
Gold—					
No. of Leases.....	101	307	279	375	334
Area ..... acres	999	3083	2869	3568	3152
Rental ..... £	999	3083	2869	3568	3152

RETURN of the Number of Leases in force—*continued.*

	1886.	1887.	1888.	1889.	1890.
Silver—					
No. of Leases	...	14	123	321	370
Area ..... acres	...	740	6830	18,691	21,029
Rental.....£	...	185	1707	4673	5257
Shale—					
No. of Leases	...	...	...	1	1
Area..... acres	...	...	...	160	160
Rental.....£	...	...	...	20	20
Precious Stones—					
No. of Leases.....	...	...	...	1	1
Area ..... acres	...	...	...	80	80
Rental .....£	...	...	...	...	...
Marble—					
No. of Leases	...	...	...	...	1
Area .....acres	...	...	...	...	320
Rental .....£	...	...	...	...	40
TOTAL—					
No. of Leases	533	1079	1532	1617	1516
Area ..... acres	22,599	36,289	48,978	57,517	57,259
Rental.....£	5313	10,406	13,717	16,093	15,727

MISCELLANEOUS Mining, 1890.

Locality.	Silver.			Copper.		
	No. of Persons employed.	Quantity raised, Tons Ore.	Value.	No. of Persons employed.	Quantity raised, Tons Ore.	Value.
			£			
Midland Division—						
Westbury (Frankford).....	..	..	..	6	5	17
North-Western Division—						
Heazlewood	44	980	9800	..	..	..
Western Division—						
Mount Zeehan	78	1073	16,687	..	..	..
Total	122	2053	26,487	6	5	17

Stone Quarries.

During the year 1890 there were 19 quarries stated by Collectors to be in operation, employing on an average 103 men.

The following is a statement of the Stone Quarries for lime and building purposes :—

	Quantity.	Value.
Limestone .... tons	3207	£2810
Flagstone and Freestone ..... cubic feet	115,873	£3794

This account, however, is probably much under the mark, as there is a considerable quantity of stone quarried which cannot be ascertained by Collectors in some districts.

Mines and Quarries.

GENERAL RETURN.—Mines and Quarries for Years 1880-6-7-8-9-90.

	1880.	1886.	1887.	1888.	1889.	1890.
GOLD.						
Number of Men employed	1653	837	824	893	1128	1009
Quantity raised ..... ounces	52,595	31,014	42,609	39,611	32,332	23,451
Value of Gold produced..... £	201,297	117,250	158,533	147,154	119,702	87,085 ‖
SILVER (Argentiferous Lead.)						
Number of Mines returning information.....	...	...	...	...	11	13
Number of Men employed	...	...	...	34	71	122
Quantity of Ore raised ..... tons	...	...	...	417	415	2053
Value of Products ..... £	...	...	...	5838	7044	26,487
COPPER.						
Number of Mines returning information.....	...	...	...	1	1	1
Number of Men employed	...	...	...	8	6	6
Quantity of Ore raised ..... tons	...	...	...	100	50	5
Value of Products ..... £	...	...	...	...	300	17
TIN.						
Number of Mines returning information.....	...	174	311	176	82	117
Number of Men employed.....	...	1499	2262	1912	2227	1592
Quantity of Ore raised ..... tons	5844	5728	5702	5245	5550	4714
Value of Products*..... £	359,208	355,136	399,140	356,660	321,900	296,761 ‖

COAL.						
Number of Mines returning information	...	...	...	...	...	...
Number of Men employed	...	127	85	104	134	191
Quantity of Coal raised ... tons	12,219	10,391	27,663	41,577	40,300	53,812
Value of Products † ... £	12,219	10,391	27,663	41,577	40,300	53,812
STONE.						
Number of Quarries returned	...	26	27	26	32	19
Number of Men employed	...	132	144	96	128	103
Quantity of Stone raised :—						
Bluestone ... cub. ft.	3987§	...	...	...	2600	...
Limestone ... tons	1050	3703	2443	1808	2028	3207
Lime ... bushels	28,971	...	...	...	...	...
,, ... tons	...	...	...	...	...	...
Freestone, Flagstone, Building Stone ... cub. ft.	100,028	402,868	248,617	230,442	126,883	115,873
Rubble or Metal ... cub. ft.	...	...	...	...	...	197,100
,, ... tons	500	726	...	...	12,469§	5150‡
Value of Products.						
Bluestone ... £	...	...	...	...	13	...
Lime ... £	...	4593	2363	2150	2449	2810
Building Stone ... £	...	8255	6314	3831	3189	3794
Rubble or Metal ... £	...	...	2280	2165	2529	2430
TOTAL VALUE OF OUTPUT OF MINES AND QUARRIES ... £	572,724	495,625	596,293	559,375	497,426	473,196

* General market value. † Local market value. ‡ Dray loads. § Tons. || Value of exports given for this year.

Mineral Production of Australasia.

The following table, prepared by Mr. Coghlan, the Government Statistician of New South Wales, represents the principal mineral productions of Australasia from 1852 to 1890 inclusive, if the value of coal extracted prior to the year 1852 be deducted. The average yearly production for the whole period is estimated at £10·98 million.

The results for Tasmania for the year 1890 are taken from local returns.

MINERAL Production of Australasia.

1852 TO 1890.

£000's omitted.

	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	New Zealand.	Australasia.
	£	£	£	£	£	£	£	£
Gold	38,075	227,357	26,035	1170	605	2238	46,426	341,906
Silver, Silver Ore	7682	89	477	69	...	30	135	8482
Copper	3363	191	1957	19,709	140	1	18	25,379
Tin	5542	674	3809	7	6	5008	...	15,046
Coal	23,892	31	1213	...	...	149	3348	28,633
Shale	1338	...	...	...	...	...	...	1338
Other Minerals	564	278	35	373	488	...	5603	7341
Total	80,456	228,620	33,526	21,328	1239	7426	55,530	428,125
Percentage	18·79	53·40	7·83	4·98	0·29	1·73	12·98	100·00
	YEAR **1890.**							
Gold	460	2354	2137	102	87	87	773	6000
Silver, Silver Ore	2763	5	57	13	...	26	6	2870
Copper	84	...	3	232	...	...	...	319
Tin	179	4	155	6	5	297	...	646
Coal	1279	7	157	...	...	54	350	1847
Shale	104	...	...	...	...	...	...	104
Other Minerals	135	7	9	7	...	9	395	562
Total	5004	2377	2518	360	92	473	1524	12,348
Percentage	40·52	19·25	20·39	2·92	·75	3·83	12·34	100·00

Trades and Manufactories.

The number of Trades and Manufactories enumerated for the year 1890 is 3558. It is less than the number for the previous year by 10. The following is an abstract of the principal groups for the years 1886, 1887, 1888, 1889, and 1890 :—

	1886.	887.	1888.	1889.	1890.
Trades relating to, and manufacture of Machines, Tools, and Implements ..... No.	272	287	292	271	261
Building Houses ..... „	484	487	432	459	436
Drinks and Stimulants..... „	467	461	471	476	464
General Dealers ..... „	434	450	483	461	462
Supply of Food..... „	553	568	599	596	634
Dress..... „	327	365	420	436	421
Miscellaneous ..... „	819	823	162	849	880
Total..... „	3356	3441	3559	3548	3558

Jam Manufactories.

The following particulars regarding the Jam Manufactories, which are wholly confined to Hobart and its vicinity, are of considerable interest :—

	1886.	1887.	1888.	1889.	1890.
Establishments working ..... No.	*8	*8	*8	*7	*8
Persons employed ..... Males, No.	111	97	93	88	103
Ditto ..... Females, No.	77	74	50	35	57
Capital invested in buildings, equipment, &c. ..... £	42,825	35,075	38,850	36,850	47,360
Jam manufactured ..... lbs.	2,884,524	2,545,619	2,356,519	1,732,071	1,489,320
Total value ..... £	46,008	43,302	37,828	24,720	24,816
Value per lb. ..... *d.*	3·83	4·08	3·95	3·43	3·99
Jam exported† ..... lbs.	2,121,850	1,942,623	1,640,811	894,010	826,485
Value ..... £	45,597	35,647	30,669	16,577	14,180
Jam sold for local consumption.. lbs.	279,430	344,310	472,979	603,666	503,925
Value..... £	4657	5694	7005	8440	8317
Raspberries and other fruit used in manufacture of Jam (estimated) lbs.	1,950,539	1,857,052	1,679,100	1,117,492	952,200

In Jam Manufacture for year 1890 there is a decrease in quantity of 242,751 lbs. as compared with 1889 ; an increase in absolute value of £96 ; and an increase in the average value per lb. of ·56*d.*

In addition to Jam, some of our manufacturers export fruit to other Colonies simply parboiled without sugar. In this state the fruit is termed "pulp," and is afterwards manufactured into Jam in the Colony to which it is exported. The value of pulp exported in 1890 was £1099. The present heavy duties levied upon our Jam exports in some Colonies are stated to be the cause of this mode of export, which seriously threatens the Jam manufacturing industry of this Colony.

Breweries.

Of the 12 Breweries in operation in Tasmania during the year 1890, 6 are situated in Hobart, 3 in Launceston and 3 in the country districts. The following abstract shows the particulars of importance as regards the years 1886, 1887, 1888, 1889, and 1890 :—

	1886.	1887.	1888.	1889.	1890.
Breweries ..... No.	14	14	14	14	12
Persons employed ..... No.	124	134	115	139	130
Capital invested ..... £	105,376	103,376	194,051	196,100	193,600
Beer brewed ..... galls.	1,296,572	1,293,291	1,398,602	1,377,203	1,353,438
Ditto per head of population ..... galls.	9·94	9·66	10·19	9·82	9·41
Duty ..... £	15,085	15,492	15,233	15,744	15,694

Thus, the production of Tasmanian Beer has decreased ·41 galls. per head of population as compared with the previous year.

Gas Works.

	1886.	1887.	1888.	1889.	1890.
Number of Gas Works	2	3	3	3	3
Ditto Gasometers	6	8	8	8	8
Cubic capacity..... feet	319,000	482,000	482,000	480,000	480,000
Cubic feet consumed during year ..... No.	80,775,600	88,400,000	91,555,500	100,444,000	109,791,800
Length of Mains ..... miles	58	62	64	67	68
Length of Service Pipes to Lamps & Consumers..... ..... miles	67	65	70	73	76
Estimated cost ..... £	131,408	156,500	159,550	162,300	167,080

Saw Mills.

	1886.	1887.	1888.	1889.	1890.
Mills.....No.	63	57	62	64	68
Persons employed... No.	759	764	862	917	863
Capital invested..... £	126,640	130,045	122,438	131,418	131,042
Value of Timber sawn £	108,342	111,750	146,432	134,171	126,295

Waterworks.

The several systems for the storage and supply of Water in Tasmania have been constructed at a cost of £230,679, of which the following is an abstract of the particulars :—

	Storage Capacity.	Length of Aqueduct and Reticulation.		Cost.
	galls.	m.	h.	£
Hobart	100,000,000	77	20	138,660
Launceston	1,050,000	70	75	76,519
Campbell Town	6,048,000,000	4	0	12,500
New Norfolk	[a]	4	10	3000
	6,149,050,000	156	25	230,679

[a] Not ascertained.

Brickyards and Potteries.

	1888.	1889.	1890.
Number of existing Establishments.....	51	57	55
Number of Establishments working[a]	45	48	50
Steam-power used in Establishments	8	8	8
Engines	9	9	9
Horse-power	103	119	119
Hand-power used in Establishments	19	15	14
Horse-power used in Establishments	17	24	27
Water-power used in Establishments	1	1	1
Number of hands employed	254	244	233
Number of Bricks made	10,069,000	9,118,200	8,700,250
Value of Bricks made.....	£23,644	£17,746	£16,438
Value of Pottery made	£4200	£7200	£9165
Approximate cost of Buildings, &c.[b]	£21,365	£23,621	£23,381

[a] Of these numbers the following is an analysis :—

	1888.	1889.	1890.
Potteries only	1	3	2
Potteries and Brickyards.....	2	1	3
Brickyards only	42	44	45

[b] Partly estimated.

Tanneries and Fellmongeries.

	1888.	1889.	1890.
Number of existing Establishments	30	29	25
Number of Establishments working[a]	24[b]	24	24
Steam-power used in Establishments	8	8	8
Engines	10	10	11
Horse-power.....	122	99	114
Hand-power used in Establishments.....	16	16	16
Number of hands employed	157	176	184
Ditto Holders or Pits in use	489	567	557
Ditto Hides tanned ..... Doz.	19,476	22,994	19,108
Ditto Skins stripped, &c. ..... Doz.	14,942	15,415	16,985
Value of Products—Leather	£49,913	£42,154	£48,634
Wool, &c.	£28,569	£50,508	£51,014
Approximate cost of Buildings, &c.	£26,722	£25,030	£25,870

[a] Of these numbers the following is an analysis :—

	1888.	1889.	1890.
Fellmongeries only	5	9	10
Tanneries only	7	4	4
Tanneries and Fellmongeries	12	11	10

[b] Particulars in respect of 3 Establishments estimated.

Soap and Candle Manufactories.

Districts in which industries are situated—Selby, Launceston, Glenorchy, Hobart.

	1888.	1889.	1890.
Number of Factories	5	5	5
Steam-power used in Establishments.....	4	4	4
Engines	6	9	5
Horse-power	74	41	60
Power (in 1 Establishment)	Hand power only	Hand power only	Hand power only
Number of hands employed	52	68	59
Quantity of Soap made ..... Tons	1140	1110	1348
Ditto Candles made ..... Tons	463	420	428
Ditto Soda made ..... Tons	328	274	290
Value of Soap made	£24,540	£21,940	£25,860
Ditto Candles made	£16,552	£16,840	£17,920
Ditto Soda made	£1660	£1968	£1910
Approximate cost of Buildings and Equipment	£19,900	£19,550	£19,900

Flour Mills.

	1888.	1889.	1890.
Number of existing Establishments	49	52	46
Number of Establishments working	42*	44*	42*
Steam-power used in Establishments	13	14	14
Engines	13	14	14
Horse-power	299	275	335
Water-power used in Establishments	26	27	24
Horse-power	296	327	302
Water and Steam-power used in Establishments	3	3	4
Engines	3	3	4
Horse-power	75	60	70
Number of Hands employed	104	125	124
Grain operated upon, Wheat.....Bushels	668,792	621,964	820,856
Ditto, other Grain ..... Bushels	93,726	107,218	89,905
Quantity of Flour produced ..... Tons	14,165	15,021	16,492
Approximate value of Buildings & Equipment ..... £	59,280	62,880	59,610

* Working and returning information.

Woollen Mills.

	1888.	1889.	1890.
Number of Establishments supplying information	3	3	3
Power used in 2 Establishments, steam, 2 engines	= 46 H.P.	= 26 H.P.	= 30 H.P.
Ditto, 1 Establishment, water	= 25 H.P.	= 25 H.P.	= 25 H.P.
Number of Persons employed	72	73	76
Quantity of Wool used ..... lbs.	157,400	143,000	168,600
Value of Products ..... £	15,054	16,521	17,600
Estimated Capital invested in Buildings, &c. ..... £	20,500*	21,340*	18,000

* Partly estimated.

Bark Mills.

	1888.	1889.	1890.
Number of Establishments supplying information	8	9*	9
Steam-power used in Establishments	7	7	7
Engines	7	7	8
Horse-power.....	97	104	90
Horse-power used in Establishment	1	1	1
Steam and Water-power used in Establishment	—	1	1
Engines	—	1	1
Horse-power	—	16	10
Number of Hands employed	59	65	74
Quantity of Bark ground ..... Tons	9672	11,758	11,497
Value of Bark ground ..... £	76,115	94,457	88,993
Capital invested in Buildings, &c. ..... £	12,205	15,305	16,355

* 1 Establishment not working.

Engineering Establishments. (Including Foundries.)*

	1888.	1889.	1890.
Number of existing Establishments.....	14†	15†	17
Number of Establishments working	14	15	17
Steam-power used in Establishments.....	11	13	13
Engines	17	22	19
Horse-power	—	116	158
Gas-power used in Establishments	2	2	3
Engines	2	2	3
Horse-power.....	4½	4½	5½
Power (in 1 Establishment)	—	—	Hand power only.
Steam and Gas-power used in 1 establishment	10 H.P.	—	—
Number of Persons	247	249	301
Approximate amount of Capital invested £	53,900	57,600	50,890
Approximate value of Products ..... £	54,400	58,197	71,460

* Not including industries attached or subsidiary to other large Establishments, such as Railway workshops, &c. † Particulars in respect of two establishments estimated.

Summary of Principal Mines and Manufacturing Industries, 1890.

MINES AND QUARRIES.

	Number of Establishments, &c.	Hands employed.	Estimated Value of Products.	Estimated Value of Lands, Buildings, and Equipment.
			£	£
Gold Mining†	..	1009	87,085	..
Tin†	117	1592	296,761	..
Silver	13	122	26,487	..
Copper	1	6	17	..
Coal	..	191	53,812	..
Quarries	19	103	9034	.
Total Mines and Quarries..	150*	3023	473,196	.

MANUFACTORIES AND WORKS.

Saw-mills	68	863	126,295	131,042
Bark-mills	9	74	88,993	16,355
Brick-yards and Potteries.....	50	233	25,603	23,381
Engineering Establishments....	16	301	71,460	50,890
Tanneries and Fellmongeries ...	24	184	99,648	25,870
Soap and Candle Manufactories.	5	59	45,690	19,900
Woollen Mills	3	76	17,600	18,000
Gas Works	3	‡	‡	167,080
Flour Mills	42	124	164,920	59,610
Jam Manufactories.....	8	160	24,816	47,360
Breweries.....	12	130	188,325	193,600
Total Manufactories	240	2204	853,350	753,088
GRAND TOTAL	390	5227	1,326,546	753,088

* Excluding Gold and Coal Mines. † The value of Exports are given in respect of Gold and Tin. ‡ Not ascertained.

SUMMARY showing approximately the Relative Value of Agricultural and Pastoral Produce for the Years 1859-1860, 1889-1890, and 1890-1891.

	1859-60.	1889-90.	1890-91.
Agricultural Produce—	£	£	£
Wheat	353,974	189,160	128,596
Barley	28,487	23,754	22,464
Oats	127,382	157,978	71,416
Other Cereals	21,485	39,238	41,272
Potatoes	125,958	271,031	274,342
Other Root Crops	62,889	104,376	82,401
Hay	276,520	289,100	208,084
Hops	...	34,252	21,631
Apples	29,702	125,753	92,246
Pears	6061	8203	6381
Other Fruits Other Garden and Orchard Produce	10,083	12,040	13,918
Total Agricultural Produce	1,042,541	1,254,885	962,751
Pastoral Produce—			
Milk, Butter, and Cheese	168,440	302,630	331,890
Value of Surplus Stock produced—			
Cattle	86,157	168,750	171,315
Sheep	80,520	145,446	151,805
Pigs	78,225	146,680	204,280
Horses	16,824	23,804	24,928
Wool exported and consumed locally	370,427	295,042	436,173
Live Stock exported	11,061	60,472	94,114
Total Pastoral Produce	811,654	1,142,824	1,414,505
Grand Total	1,854,195	2,397,709	2,377,256
Grand Total per Head of Population	21·13	16·86	16·36
Agricultural Produce ditto	11·88	8·83	6·63
Pastoral Produce ditto	9·25	8·03	9·73

CHAPTER XIV.

Law, Crime, and Protection.

Legislation.

During the year 1890 (52 Vict.) there was only one Session of Parliament, which opened on 1st July, 1890, and closed on 28th November, 1890, covering a space of 151 days, *i.e.*, 4 days less than in the preceding year.

During the Session there were introduced 79 Bills—of which 57 passed into law; 22 were lost, discharged, or laid aside. Full particulars regarding the Bills which engaged the attention of Parliament will be found in Statistics for the year, pp. 246-251.

Probates and Letters of Administration.

The following comparative abstract for the years 1889 and 1890 shows the extent of business transacted under the foregoing heading:—

	Probates.		Letters of Administration.		Both.		Average value of each Estate.
	Number.	Property sworn under.	Number.	Property sworn under.	Number.	Property sworn under.	
		£		£		£	£
1889.....	161	253,557	64	43,190	225	296,747	1319
1890.....	182	459,156	80	69,135	262	528,291	2017
Increase	21	195,599	16	25,945	37	231,544	688
Decrease	—	—	—	—	—	—	—

The average value of each property sworn under was—Probates, £2523; Letters of Administration, £864; both, £2017.

Bankruptcies.

There were 76 petitions in bankruptcy presented during the year 1890, of which 15 were compulsory, and the remaining 61 voluntary. The total liabilities of the voluntary bankrupts amount to about £69,081, and the assets in respect of the same are stated at £27,945, *i.e.*, 40 per cent.

As regards the 15 compulsory cases presented—13 of which were adjudicated bankrupts and 2 dismissed—the assets are stated to be £4214, and the liabilities, £16,665; *i.e.*, assets represented about 25 per cent. of the liabilities.

Litigation.

Civil Causes and other Cases tried.

The following is an Abstract of the Civil Causes and Cases tried in the various Courts during the year 1890, together with comparisons with the former year and with the average of the last decade :—

	1890.	1889.	Average of last Decade, 1881-90.	1890 Increase or Decrease as compared with— + Increase. — Decrease.	
				1889.	Average of Decade.
Supreme Court, Ordinary Jurisdiction—					
Summonses issued No.	438	448	434	— 10	+ 4
Causes tried ..... No.	11	17	14	— 6	— 3
Claimed ..... £	...	...	...	...	...
Awarded..... £	1189	14,194	2988	— 13,005	— 1799
Supreme Court, under Small Debts Act—					
Summonses issued No.	306	326	214	— 20	+ 92
Causes tried ..... No.	179	191	113	— 12	+ 66
Claimed ..... £	10,258	12,233	6322	— 1975	+ 3936
Awarded..... £	4146	4358	2498	— 212	+ 1648
Court of Requests—					
Summonses issued No.	7338	8227	5961	— 889	+ 1377
Cases tried ..... No.	4586*	5101*	3473	— 515	+ 1113
Claimed ..... £	43,451	46,771	33,894	— 3320	+ 9557
Awarded..... £	24,393	28,396	19,821	— 4003	+ 4572
All Courts—					
Summonses issued No.	8082	9001	6609	— 919	+ 1473
Causes & Cases tried No.	4776	5309	3600	— 533	+ 1176
Claimed ..... £	53,709	59,004	40,216	— 5295	+ 13,493
Awarded ..... £	29,728	46,948	25,307	— 17,220	+ 4421

* Including Judgments entered up.

Taken as a whole, it would appear from the foregoing abstract that the number of causes and cases tried in the various Courts during 1890 was less than those for the previous year by 533, or 10·04 per cent., but more than the average of the decade by 1176, or 32·66 per cent. Only 59·00 per cent. of the summonses issued were actually proceeded with, and of the latter the amounts awarded only represented 55·35 per cent. of the amounts claimed.

Divorce, Protection Orders, &c.

There were 5 petitions under this head during the year 1890.

Offences.

The classification now adopted is more in accordance with that of Victoria and other Australasian Colonies, and enables the Statistician more effectually to separate the purely civil cases from the criminal offences. Prior

to the year 1884 the Tasmanian classification included "non-payment of rates" and other purely civil cases among the "minor offences." This placed Tasmania at a disadvantage when comparisons were made with other countries.

The following abstract shows the number of Offences dealt with in the various Courts for the five years ending with the year 1890:—

COMPARATIVE Table showing the Number of Offences, Apprehensions, Convictions, and Acquittals for the Quinquennium 1886–1890.

Offences.	1886.	1887.	1888.	1889.	1890.	Mean of Five Years.
Numerical.						
Reported to the Police	7255	6709	6669	7720	6859	7042
Against the Person	536	519	454	500	497	501
Against Property	1133	1283	1023	1053	999	1098
Others	5586	4907	5192	6167	5363	5443
Brought before Magistrates	6586	5932	6164	7128	6411	6444
Against the Person	511	527	454	475	483	490
Against Property	683	733	569	623	605	642
Drunkenness	1507	1192	1145	1155	1151	1230
Other Offences	3885	3480	3996	4875	4172	4082
Summarily convicted	5253	4806	4595	5122	4962	4947
Committed for Trial	76	89	99	105	117	97
Actually tried in Superior Courts	59	86	85	58	56	69
Convicted after commitment	46	56	66	42	46	51
Discharged or acquitted in Magistrates' Courts	1244	1037	1470	1901	1332	1396
Ditto in Superior Court	13	26	19	16	10	16
Per 1000 *Persons.*						
Brought before the Magistrates—						
Against the Person	3·92	3.94	3·31	3·39	3·36	3·58
Against Property	5·24	5·48	4·15	4·44	4·21	4·70
Drunkenness	11·55	8·91	8·35	8·23	8·01	9·01
Other Offences	29·78	26·00	29·13	34·75	29·02	29·74
Summarily convicted	42·16	35·91	33·49	36·51	34·51	36·52
Per 10,000 *Persons.*						
Committed for Trial	6·10	6·65	7·22	7·48	8·14	7·12
Actually tried in Superior Courts	4·52	6·43	6·20	4·14	3·90	5·03
Convicted after commitment	3·69	4·18	4·81	2·99	3·20	3·77
Percentage.						
Summary convictions to Cases brought before Magistrates	79·76	81·02	74·54	71·86	77·40	76·77
Percentage of Convictions to Commitments after commitment in Superior Courts	60·53	62·92	66·67	40·00	39·31	52·58
Percentage of Convictions to Cases actually tried in Superior Courts	77·97	53·49	77·65	72·42	82·14	73·92

Offences in Australasian Colonies and in the United Kingdom compared, for the years 1884–1890.

Numerical.

	Australasia.								United Kingdom.
	Victoria.	New South Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	New Zealand.	Total.	
Apprehended or summoned:									
1884	51,397	75,680	15,518	11,988	4831	6273	23,572	189,259	..
1885	52,566	77,092	15,763	10,406	4900	5983	23,103	189,813	..
1886	54,361	81,503	17,640	8202	5703	6586	21,662	195,657	..
1887	59,036	72,119	16,769	7122	5363	5932	20,336	186,677	..
1888	60,276	69,052	18,431	7309	4651	6164	19,167	185,050	..
1889	63,999	65,568	19,539	..	..	7128	18,476	..	..
1890	64,784	66,087	18,996	..	..	6411	18,701	..	..
Mean of last 5 years*	64,491	70,866	18,275	9005	5090	6444	19,668	189,291	..
Summarily Convicted or held to Bail :									
1884	34,456	57,897	11,620	10,425	3477	4843	17,968	140,686	..
1885	34,180	59,345	11,451	8901	3436	4876	17,804	139,993	..
1886	36,599	62,268	12,841	6850	3980	5253	16,705	144,496	..
1887	38,742	53,614	12,449	6032	3562	4806	15,557	134,762	..
1888	41,054	50,876	13,730	6282	3144	4595	14,472	134,153	..
1889	43,142	48,703	14,787	..	..	5122	13,861	..	..
1890	44,415	48,102	14,570	..	..	4962	14,128	..	..
Mean of last 5 years*	40,790	52,713	13,675	7698	3520	4947	14,945	138,818	..
Committed for Trial :									
1884	695	1550	555	293	64	70	509	3736	19,442
1885	768	1540	538	240	86	71	428	3671	18,971
1886	756	1594	611	228	95	76	536	3896	19,439
1887	820	1402	480	208	121	89	646	3766	18,343
1888	873	1561	538	190	104	99	516	3743	18,290
1889	1042	1595	567	..	..	105	460	..	16,550
1890	1129	1554	494	...	..	117	496	..	16,349
Mean of last 5 years*	925	1541	539	232	94	97	531	3762	17,794
Convicted after Commitment :									
1884	407	928	274	127	40	39	241	2056	14,765
1885	442	785	267	133	51	31	236	1945	14,029
1886	492	957	289	121	54	46	286	2245	14,143
1887	506	854	247	102	75	56	334	2174	13,592
1888	557	915	275	91	64	66	255	2223	13,634
1889	651	910	256	78	..	42	225	..	12,310
1890	662	955	275	..	..	46	227	..	12,363
Mean of last 5 years*	574	918	268	105	57	51	265	2129	13,208

* The last 5 years for which figures are available for each country are here reckoned.

OFFENCES in Australasian Colonies and in the United Kingdom compared during Years 1884–1890 in relation to Population.

Particulars.	Australasia.								United Kingdom.
	Victoria.	New South Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	New Zealand.	TOTAL.	
	Proportion per 10,000 persons.								
Apprehended & Summoned:									
1884	550·3	859·2	526·4	388·3	1494·3	486·6	429·4	604·7	..
1885	548·4	828·1	510·5	332·3	1438·1	452·7	408·0	585·1	..
1886	550·8	831·7	530·5	262·0	1533·7	486·0	372·1	581·0	..
1887	579·0	705·4	472·7	227·3	1286·1	424·2	341·0	535·2	..
1888	567·5	666·5	488·6	229·9	1099·2	449·3	316·6	512·1	...
1889	587·6	614·7	514·9	..	..	508·1	..	..	..
1890	579·2	599·8	489·0	..	..	446·0	..	..	..
Mean of last 5 years*.	572·8	683·6	499·1	288·0	1370·3	462·7	373·4	563·6	..
Summarily Convicted:									
1884	368·9	657·3	394·2	337·8	1075·5	377·2	327·3	449·7	..
1885	356·6	637·5	370·8	258·4	1008·5	368·9	314·5	429·1	..
1886	370·8	639·1	386·2	218·8	1070·4	387·7	285·3	429·6	..
1887	379·9	524·4	350·9	192·5	854·2	343·7	260·8	386·4	..
1888	386·6	491·1	364·0	197·6	743·0	335·0	239·1	371·3	..
1889	396·1	456·6	389·7	..	..	360·6	..	..	..
1890	397·2	436·5	375·1	..	..	345·2	..	..	..
Mean of last 5 years*.	386·1	509·5	373·2	241·0	950·3	354·4	285·4	413·2	..
Committed for Trial:									
1884	7·4	17·6	18·9	9·5	19·8	5·5	9·3	11·9	5·4
1885	8·0	16·5	17·4	7·7	25·3	5·4	7·6	11·1	5·2
1886	7·7	16·3	18·4	7·3	25·6	5·6	9·2	11·6	5·3
1887	8·0	13·7	13·5	6·6	29·0	6·4	10·8	10·8	5·0
1888	8·2	15·1	14·3	6·0	24·6	7·2	8·5	10·3	5·0
1889	9·6	15·0	14·9	..	..	7·4	..	..	4·5
1890	8·3	14·1	12·7	..	..	8·1	..	..	4·4
Mean of last 5 years*.	8·8	14·8	14·8	7·4	24·9	6·9	9·1	11·1	4·8
Convicted after Commitment:									
1884	4·4	10·5	9·3	4·1	12·4	3·0	4·4	6·6	4·1
1885	4·6	8·4	8·7	4·3	15·0	2·4	4·2	6·0	3·9
1886	4·9	9·8	8·7	3·9	14·5	3·7	4·9	6·7	3·9
1887	4·9	8·4	7·0	3·3	18·0	4·2	5·6	6·2	3·9
1888	5·2	8·8	7·3	2·9	15·1	4·8	4·2	6·2	3·7
1889	6·0	8·5	6·7	..	..	3·0	..	..	3·3
1890	5·1	8·7	7·1	..	..	3·2	..	..	3·3
Mean of last 5 years*.	5·2	8·8	7·4	3·7	15·0	3·7	4·7	6·3	3·6
Proportion of Summary Convictions to Apprehensions and Summonses:									
1884	67·0	76·5	74·9	87·0	72·0	77·2	76·2	74·3	..
1885	65·0	77·0	72·6	77·8	70·1	81·5	77·0	73·3	..
1886	67·3	76·8	72·8	83·5	69·8	79·9	76·7	74·0	..
1887	65·6	74·3	74·2	84·7	66·4	81·0	76·7	72·2	..
1888	68·1	73·7	74·5	85·9	67·6	74·6	75·5	72·5	..
1889	67·4	74·3	75·7	..	..	71·9	..	..	..
1890	68·6	72·8	76·7	..	..	77·4	..	..	..
Mean of last 5 years*.	67·4	74·4	74·8	83·8	69·2	76·9	76·4	73·3	..

OFFENCES in Australasian Colonies, &c.—*continued.*

Particulars.	Australasia.								United Kingdom.
	Victoria.	New South Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	New Zealand.	TOTAL.	
Proportion of Convictions after Commitment to Committed:	Percentage.								
1884	58·6	59·9	49·4	43·3	62·5	55·7	47·4	55·1	75·9
1885	57·8	53·5	49·7	55·4	59·3	43·7	55·1	54·1	73·9
1886	65·1	60·0	47·3	43·0	56·8	60·5	53·6	57·6	72·8
1887	61·7	60·9	51·5	49·0	62·0	62·9	51·7	57·7	74·2
1888	63·8	64·3	51·2	47·9	61·5	66·7	49·4	59·6	74·5
1889	62·5	57.1	45·2	..	..	40·0	..	..	74·4
1890	58·6	61·4	55·7	..	..	39·3	..	..	75·6
Mean of last 5 years*	62·3	60·7	50·2	47·7	60·4	52·6	51·4	56·8	74·3

* The last five years for which figures are available for each country are here reckoned.

ANALYSES of Offences for which various Persons were Apprehended or Summoned in Australasia.

	Numerical.				Per 1000 Persons.			
	Against the Person.	Against Property.	Drunkenness.	Other Offences.	Against the Person.	Against Property.	Drunkenness.	Other Offences.
Victoria—								
1884	3648	4373	12,938	30,438	3·91	4·68	13·85	32·59
1885	4159	4233	13,580	30,594	4·34	4·42	14·17	31·92
1886	4190	4776	14,528	30,867	4·24	4·84	14·72	32·28
1887	4017	5020	15,578	34,421	3·94	4·92	15·28	33·75
1888	3835	4894	18,526	33,018	3·61	4·61	17·44	31·09
Mean of 5 years	3970	4659	15,030	31,868	4·01	4·69	15·09	32·33
New South Wales—								
1884	10,059	7160	25,428	33,033	11·42	8·13	28·87	37·50
1885	9518	7209	27,493	32,872	10·22	7·74	29·53	35·31
1886	10,135	7355	27,722	36,291	10·34	7·51	28·29	37·03
1887	8903	8017	24,146	31,053	8·71	7·84	23·62	30·37
1888	9055	9134	22,331	28,532	8.51	8·58	20·98	26·81
Mean of 5 years	9534	7775	25,424	31,156	9·84	7·96	26·26	33·40
Queensland—								
1884	2543	1687	5117	6171	8·63	5·72	17·36	20·94
1885	2230	1748	5508	6277	7·22	5·66	17·84	20·33
1886	2091	1956	5748	7845	6·29	5·88	17·29	23·59
1887	2587	2126	6000	6056	7·29	5·99	16·91	17·07
1888	2460	2273	6206	7492	6·52	6·03	16·45	19·86
Mean of 5 years	2382	1958	5716	6768	7·19	5·86	17·17	20·36
South Australia—								
1884	776	711	3938	6563	2·51	2·30	12·76	21·26
1885	643	755	3361	5647	2·10	2·41	10·73	18·03
1886	570	724	2566	4342	1·82	2·31	8·20	13·87
1887	437	614	2090	3981	1·39	1·96	6·67	12·70
1888	549	605	2388	3767	1·73	1·90	7·51	11·85
Mean of 5 years	595	682	2869	4860	1·91	2·18	9·17	15·54
Western Australia—								
1884	410	335	4086		12·68	10·36	126·39	
1885	403	323	4174		11·83	9·48	122·53	
1886	474	414	4815		12·75	11·13	129·49	
1887	472	532	4359		11·32	12·76	104·53	
1888	517	473	3661		12·22	11·18	86·50	
Mean of 5 years	455	415	4219		12·16	10·98	113·89	
Tasmania—								
1886	511	683	1507	3885	3·92	5·24	11·55	29·78
1887	527	733	1192	3480	3·94	5·48	8·91	26·00
1888	454	569	1145	3996	3·31	4·15	8·35	29·13
1889	475	623	1155	4875	3·39	4·44	8·23	34·75
1890	483	605	1151	4172	3·36	4·21	8·01	29·02
Mean of 5 years	490	642	1230	4082	3·58	4·70	9·01	29·74
New Zealand—								
1884	1712	2438	7154	12,268	3·12	4·44	13·03	22·35
1885	1785	2198	7012	12,108	3·15	3·88	12·39	21·39
1886	1617	2393	6297	11,355	2·78	4·11	10·82	19·51
1887	1660	2537	5661	10,478	2·78	4·25	9·49	17·57
1888	1515	2407	5692	9553	2·50	3·98	9·40	15·78
Mean of 5 years	1658	2395	6363	11,152	2·87	4·13	11·03	19·32

Crimes in various Countries.

It will be seen from the foregoing tables that Tasmania takes up a most creditable position as compared with any other country in freedom from Drunkenness and Crime.

As regards Minor Offences—other than those classed under Offences against Property, against the Person, and Drunkenness—it is almost useless or misleading to institute comparisons between any two countries ; for such is the variability in local laws respecting order and welfare, that it may not unfrequently happen that the largeness of such transgressions may be entirely due to extra trivial municipal by-laws not applied or enforced in country districts, and not forming legal offences in many countries. The only satisfactory course, therefore, will be to make extended comparisons as regards all offences in respect of different years within the same country. With different countries the only safe course to pursue will be to confine comparisons strictly to groups which may be deemed to be equally applicable in all countries, viz., Serious Crimes tried before the Superior Courts ; and, as regards Inferior Courts, only those that are common to all countries, such as Offences against Property, Offences against the Person, and Drunkenness.

Cases of Minor Offences.—Offences brought before Magistrates in Australasian Colonies: Average of last Five Years (1884–1888).

The following is the order of the proportion of Offences per year in each Colony of Australasia in relation to population, beginning with the highest:—

MINOR OFFENCES.

(*a*) *Order of Colonies in reference to Offences against Property*—Per 1000 persons.

		Average of last Five Years.
I.	1. Western Australia	10·98
I.	2. New South Wales	7·96
I.	3. Queensland	5·86
II.	4. Tasmania	4·70
III.	5. Victoria	4·69
III.	6. New Zealand	4·13
III.	7. South Australia	2·18

(*b*) *Offences against the Person*—Per 1000 persons.

I.	1. Western Australia	12·16
I.	2. New South Wales	9·84
I.	3. Queensland	7·19
II.	4. Victoria	4·01
III.	5. Tasmania	3·58
III.	6. New Zealand	2·87
III.	7. South Australia	1·91

(*c*) *Cases of Drunkenness*—Per 1000 persons.

I.	1. New South Wales	26·26
I.	2. Queensland	17·17
II.	3. Victoria	15·09
III.	4. New Zealand	11·03
III.	5. South Australia	9·17
III.	6. Tasmania	9·01

(*d*) *Offences against the Person, against Property, and Drunkenness*—Per 1000 persons. (Western Australia omitted.)

I.	1. New South Wales	44·06
I.	2. Queensland	30·22
II.	3. Victoria	23·79
III.	4. New Zealand	18·03
III.	5. Tasmania	17·29
III.	6. South Australia	13·26

(*e*) *Percentage of Summary Convictions in relation to Total Number of Cases brought before Minor Courts.*

In this case the order is inverted, as it is apparent that either the lower percentages indicate a greater degree of laxity on the part of the magistrates, or a greater number of cases improperly brought under the notice of magistrates by the police.

Those Colonies, therefore, which show the smaller proportion of cases are placed first in order of defect.

	Per cent.
1. Victoria	67·4
2. Western Australia	69·2
3. New South Wales	74·4
4. Queensland	74·8
5. New Zealand	76·4
6. Tasmania	76·9
7. South Australia	83·8

In the above analyses it will be observed that there is a wonderful uniformity in the order in which the several Colonies stand to each other in relation to the number of offences brought before Magistrates' Courts.

As in each case the figures relate to the average of the last five years, the comparisons are free from the abnormal conditions of any one year, and hence the comparative order may be more confidently accepted as affording a fair picture of the comparative freedom from such offences in each Colony. In making comparisons of this kind the Statistician has grave responsibilities; for in their interpretation not only must he allow for his own personal equation of error, due to possible bias in favour of his own country, but he must see that no dissimilar matters are included under a common category. Where such incongruous matters are compared under a misleading common general term, such as various items under "Offences against the Public Welfare," in different places, the elaborate percentages and proportions to population of the Statistician serve a mischievous purpose in tricking the mind to error. This is the reason why in the more precise comparisons just given no attempt has been made to include the items commonly grouped under the heading "Offences against Public Welfare," "Offences against Good Order," &c. It is apparent that the major portion of such offences are not merely not of a grave character, but the nature of the act is no offence of itself except as regards occurrence at a particular *place* or at a particular *time*. For example, certain Municipal By-laws, such as "Vehicles must walk over a crossing," although constituting a large number of such offences, only apply to certain crossings in certain towns, and not an offence elsewhere. Again, peculiar local conditions require special local laws in different countries. For example, in Tasmania breaches against the following matters constitute 36·5 per cent. of all the "Offences against Public Welfare," viz.—Breaches against "Californian Thistle Act," "Rabbit Act," "Codlin Moth Act," "Scab Act." Of what value, therefore, would the general comparison be in different countries, where not only are the laws different in respect of the same object, but where the objects deemed to be subjects of legal concern are themselves altogether different? It is reasonable, therefore, to assume that elaborate comparisons under such hopelessly variable conditions are worse than useless, for they lead to false conclusions.

As regards the three principal groups selected specially for comparison these objections do not apply, although it is probable that the facilities and machinery for the detection of the offences against good order, such as drunkenness, are more perfect in towns than in country districts. But this objection applies alike to all countries, and can only be fairly measured by

dealing with town and country populations separately. This is a far more reasonable course than that ordinarily pursued, as when figures giving widely different results are, without proper evidence, referred to greater or lesser care on the part of Collectors of Statistics, or greater laxity or zeal on the part of the police or others responsible for carrying out the common laws. All statistical comparisons would be useless if such assumptions are freely made at the mere call of local sympathies.

Guarding against such improper diversions, it may reasonably be concluded that the order of the various Colonies in freedom from offences against the person, property, and drunkenness—are as follows, beginning with the lowest :—

1. South Australia.
2. Tasmania.
3. New Zealand.
4. Victoria.
5. Queensland.
6. New South Wales.
7. Western Australia.

South Australia, Tasmania, and New Zealand thus occupy the highest position among Australasian Colonies in freedom from crime as regards minor offences. The order here given is also the same if attention be restricted to *arrests* for drunkenness in the several Colonies.

Serious Crimes.

In crimes of a serious nature the classification of various countries does not present any material difference, and hence comparisons made on the basis of mean population are not open to the same grave objections as when attempts are made in this direction in respect of the minor offences, of which such a large percentage are more or less artificial, or trivial departures from purely local provisions. The presence or absence of stringent provisions for the detection of crime or the preservation of order, although an important matter as regards deductions to be drawn in respect of *minor offences*, is not likely to disturb the conclusions drawn from comparisons made in respect of *serious crimes*.

If Tasmania takes up a creditable position as compared with other Colonies as regards freedom from minor offences, the following table in respect to serious crimes—dealt with in Superior Courts—proves that Tasmania continues to contrast most favourably with other countries in comparative freedom from crimes of a serious character.

Major Offences or Serious Crimes dealt with by Superior Courts in Australasia and the United Kingdom.

The following abstracts show the order of the proportion of serious crimes in each country in relation to population, beginning with the highest. The figures relate to the mean per year of the last five years recorded :—

(a) Committed for Trial—Per 10,000 Persons.

	Average last 5 years.
1. Western Australia	24·9
2. Queensland	14·8
3. New South Wales	14·8
4. New Zealand	9·1
5. Victoria	8·8
6. South Australia	7·4
7. Tasmania*	6·9
8. Scotland	5·9
9. Ireland	5·1
10. England and Wales	4·6

* Actually tried, 5·03.

It is gratifying to find that Tasmania ranks lower than any other Australian colony, in freedom from crimes of a serious character.

(b) Convicted after Commitment.

1. Western Australia	15·0
2. New South Wales	8·8
3. Queensland	7·4
4. Victoria	5·2
5. Scotland	4·7
6. New Zealand	4·7
7. South Australia	3·7
8. Tasmania	3·7
9. England and Wales	3·6
10. United Kingdom	3·6
11. Ireland	2·8

Here Tasmania, with South Australia, stands in the most favourable position as regards all other Australasian Colonies in the smallness of conviction for serious crimes in relation to population, being nearly equal to the average of the United Kingdom and lower than Scotland.

(c) Proportion of Convictions in relation to Commitments for Trial.

1. Scotland	78·6
2. England and Wales	77·2
3. United Kingdom	74·3
4. Victoria	62·3
5. New South Wales	60·7
6. Western Australia	60·4
7. Ireland	54·9
8. Tasmania	52·6
9. New Zealand	51·4
10. Queensland	50·2
11. South Australia	47·7

With respect to the proportion of convictions to commitments for trial, England and Wales stand highest, and South Australia and Queensland lowest. It is not certain, however, that the numbers *committed for trial* stand for the same thing in different countries; for in Tasmania, owing principally to the errors in judgment of a country magistracy, a considerable proportion of the cases are improperly so referred; and the cases actually *tried* are usually much under the number *committed for trial by Magistrates.* Thus, although the mean proportion of convictions for the last ten years was 52·58 per cent of cases *committed for trial*, the mean porportion in relation to actual cases *tried* was as high as 73·92 per cent.

Drink, Drunkenness, and Crime.

The following table shows for the last twelve years the extent of crime, the amount of drunkenness, and the actual consumption per head of wines, spirits, and malt liquors :—

Year.	Per 10,000 of Mean Population.			Per Head of Mean Population.	
	Apprehensions and Summonses.‡	Apprehensions for Drunkenness.	Committed for Trial in Superior Courts.	Wines and Spirits consumed.	Malt Liquors consumed.
	No.	No.	No.	galls.	galls.
1875 ...	*Nil.*	*Nil.*	*Nil.*	·928	...
1876 ...	545·6*	173·8*	9·18	·978	...
1877 ...	495·0	126·5	9·60	1·051	...
1878 ...	485·6	126·6	10·41*	1·043	...
1879 ...	510·8	135·2	9·89	·950	...
1880 ...	472·2	135·8	10·30	·882	...
1881 ...	407·8	123·3	7·67	·921	9·365
1882 ...	479·5	151·4	7·70	1·061*	10·035
1883 ...	494·5	152·0	7·08	1·013	10·205*
1884§ ..	355·8	122·8	5·45	·838	9·036†
1885 ...	343·5	111·2	5·37†	·860	9·237
1886 ...	374·5	111·5	6·10	·861	9·652
1887 ...	335·1†	89·1	6·65	·850	9·691
1888 ...	365·8	83·5	7·22	·893	9·366
1889 ...	425·8	82·3	7·48	·730†	9·641
1890 ...	365·9	80·1†	8·14	·809	9·258

* Maximum. † Minimum. ‡ Less cases of drunkenness. § The figures prior to 1884 are relatively somewhat higher than they ought to be, owing to the inclusion of petty cases of non-payment of rates, &c., subsequently included among *civil cases.*

These figures present many interesting considerations with reference to drink, drinking, and crime. It is curious to observe—although there is evidently a perceptible relationship between drunkenness and other minor offences—the immediate relationship between drunkenness, the average yearly consumption of intoxicating liquors, and serious crimes is far from being apparent. This will be observed by reference to the signs indicating the year when the maximum and minimum were reached under each specific head. Whatever indirect effects spring from the excessive use of intoxicating liquors, the extent of actual drunkenness and the year's drinking does not correspond with the actual extent of serious crime within any one year during the last decade in Tasmania. It is excessive drinking by the same individual within a brief space of time which immediately induces the state of drunkenness, and not the quantity taken over a long yearly period ; and hence it is quite conceivable that individual excesses within, say each 24 hours, may be more frequent in some cases where the mean quantity *per head per year* of total population may be comparatively low—and, conversely, there may be fewer cases of individual excess in drinking in some cases where the average of drinking *per head per year* of total population is comparatively high. Generally, however, the mean per year is a good, if not an infallible index to increase or decrease in drinking habits. Unfortunately, the figures relating to actual consumption of malt liquors cannot be ascertained for years prior to 1881.

These observations are confirmed by the following abstract of the consumption of alcoholic drinks in various countries :—

CONSUMPTION of Alcoholic Drinks in various Countries contrasted with Consumption of Tea and Coffee, and the relative amount of Insanity.

	Gallons Alcoholic Drinks per Head.				Ounces Tea and Coffee per Head.	Insanity per 1000 Persons.
	Beer.	Wine.	Spirits.	Equivalent in Alcohol.		
France	11·0	19·0	1·9	3·5	66	2·5
Denmark	12·5	0·5	4·0	2·5	140	2·9
Sweden	6·2	0·4	4·2	2·3	112	
Germany	18·0	2·5	1·3	2·2	78	2·4
Belgium	28·5	0·7	1·6	2·0	142	1·2
Switzerland	3·3	10·0	1·7	2·0	110	1·1
Norway	5·0	0·4	3·5	2·0	144	2·9
United Kingdom	27·0	0·4	0·9	1·9	91	3·2
Italy	1·0	16·5	0·4	1·9	20	1·7
Holland	8·8	0·7	2·6	1·8	240	1·2
Spain	0·3	15·0	0·3	1·7	6	0·7
Austria	6·5	5·2	1·6	1·6	28	2·0
Portugal	0·2	12·7	0·2	1·5	18	0·7
Servia	2·0	5·0	1·0	1·5	8	—
Roumania	1·8	3·0	1·0	1·0	8	—
Russia	0·9	0·5	1·0	0·6	6	1·1
Europe	9·0	6·0	1·1	1·6	21	1·6
United States	10·5	0·4	1·3	1·2	162	3·3
Canada	8·0	0·6	1·0	1·0	72	1·8
Australasia (1889)—						
Western Australia	13·1	3·4	1·2	1·9	—	2·8
Victoria	19·3	1·1	1·0	1·6	132	3·2
New South Wales	10·9	0·8	1·1	1·2	131	2·6
Queensland	9·9	0·6	1·2	1·2	139	2·4
South Australia	13·3	1·0	0·6	1·1	124	2·4
New Zealand	7·6	0·2	0·8	0·8	118	2·8
Tasmania	9·3	0·2	0·7	0·8	111	2·0
Australasia	12·9	0·8	0·9	1·2	134	2·8

The figures for Europe and America are taken from Mulhall's admirable "Dictionary of Statistics," (pp. 58, 285, 327). The figures for Tasmania are taken from local statistics, and those for other Australasian Colonies are taken from an excellent summary for the year 1889, prepared by Mr. Coghlan.*

As the relative consumption of beer, wine, and spirits varies so widely in different countries, the aggregate consumption can only be ascertained by reducing the various kinds of liquor to a common equivalent. That adopted by Mr. Mulhall is the *equivalent in pure alcohol.* Even then there is some difficulty in estimating the mean percentage of alcohol for different kinds of beer (including ale, porter, &c.), wine, and spirits for the different countries, as the degree of alcohol varies considerably, accordingly as the prevailing form of drink consumed bears a lower or higher percentage of alcohol. Thus the percentage of alcohol in wine for France, where light wines are largely consumed—ranging from 9·6 to 13·3 per cent. alcohol—must be reckoned at

* The Seven Colonies of Australasia, (1891), pp. 178, 288.

a lower standard than that adopted for the United Kingdom, where comparatively heavier wines are consumed ranging from 19·0 to 23·2 per cent. alcohol. Similarly, as kinds of malt liquor range from 4·0 to 7·4 per cent. alcohol, the proportion of the prevailing kind consumed determines the standard. The differences in common spirits consumed are not so great, as they only range from 51·6 (gin) to 54·3 (Scotch whisky) per cent. alcohol. As the prevailing kinds of liquor consumed in Australasia are, in kind and proportion of alcohol, not very much different from those of the United Kingdom, the author has reduced the quantities consumed in Australasia to their equivalents in pure alcohol as nearly as possible upon the same percentages used by Mr. Mulhall for determining the alcohol equivalent for the United Kingdom.

If the alcohol consumed *per head* in various countries be compared, we find that France consumes the greatest amount, and Russia, Tasmania, and New Zealand the smallest.

It will be seen that to make a fair estimate of the comparative drinking habits of different countries is a very complex matter, and that if attention be restricted to one of the prevailing kinds of drink consumed—as seems to be the custom in the casual comments of loose or unskilled observers—we would be almost certain to err widely in our conclusions.

There appears to be some force in the statement that drinking is largely determined by the longitude and latitude of the locality; for wherever the climate is most favourable for the growth of barley, there, as a rule, the consumption of either beer or spirits attains its maximum as the common beverage; and similarly, where the climate and other conditions most favour the growth of the vine, there too, as a rule, the consumption of wine attains its maximum as the common beverage. This conclusion is borne out by the countries which are most distinguished for the consumption of beer and spirits and wine respectively.

COUNTRIES producing the largest yield of Barley per Head.

Consumption of Alcoholic Drinks in gallons, per Head.

	Spirits.	Beer.	Wine.	Equivalent in Alcohol.
Denmark	4·0	12·5	0·5	2·5
Sweden	4·2	6·2	0·4	2·3
Germany	1·3	18·0	2·5	2·2
Norway	3·5	5·0	0·4	2·0
United Kingdom	0·9	27·0	0·4	1·9
United States	1·3	10·5	0·4	1·2
Australasia	0·9	12·9	0·8	1·2
Tasmania	0·7	9·3	0·2	·8

COUNTRIES producing the largest yield of Wine per Head.

Consumption of Alcoholic Drinks in gallons, per Head.

	Spirits.	Beer.	Wine.	Equivalent in Alcohol.
France	1·9	11·0	19·0	3·5
Switzerland	1·7	3·3	10·0	2·0
Italy	0·4	1·0	16·5	1·9
Spain	0·3	0·3	15·0	1·7
Portugal	0·2	0·2	12·7	1·5

Whatever qualifications may be allowed, it is clear that the largest consumption of alcohol occurs in wine-growing countries (France), and the lowest (Tasmania) in barley-growing countries.

Taking Tasmania and Australasia as standards (unit 100) in the comparative consumption of alcohol, we have the following results :—

	Tasmania. Unit 100.	Australasia. Unit 100.
Tasmania	100	67
Australasia	150	100
United States	150	100
Europe	200	133
United Kingdom	238	158
France	438	292

Thus it appears that the amount of alcohol consumed in the United Kingdom is 58 per cent. in excess of the average consumption in Australasia, and as much as 138 per cent. above the average consumption in Tasmania or New Zealand. Whatever the drinking habits of the people of Australasia may be, as measured by some ideal standard of temperance, these figures unmistakably show that they are not excessive, as indicated by loose and incompetent writers ; and the amount consumed *per head of the population* is wonderfully low as compared either with the average of Europe or of the United Kingdom. The fact that the consumption of alcohol in the latter country is 58 per cent. in excess of Australasia leaves no room for doubt as to the comparative drinking habits of the two countries. These conclusions are also in harmony with the fact that the rates of insanity are lower in Australasia than in the United Kingdom. It is estimated that drink causes 24 per cent. of the insanity of various countries. If, therefore, the figures relating to amount of alcohol consumed be greater in the United Kingdom as compared with Australasia, it is reasonable to expect that the rate of insanity should also be greater. The accuracy of these conclusions, measured by this test, is demonstrated in the following figures :—

Drink and Insanity.

	Consumption of Alcohol.	Insane Persons per 1000 inhabitants.
	Gallons per head.	
Ireland	1·9	3·16
Scotland		2·91
England		2·88
Australasia	1·2	2·79
Tasmania	0·8	2·00

Punishments in Gaols and Penal Establishments.

During 1890 there were altogether 1223 prisoners confined at various times and for different periods, in the various Gaols and Penal Establishments, of which 878, or 71·79 per cent., were males, and 345, or 28·21 per cent., were females.

On the average there were only 150 males and 32 females confined per day during the whole year, and the average duration of confinement pe individual prisoner was equal to 54 days.

Comparisons with the previous year are best appreciated in a tabular form, thus :—

	1886.	1887.	1888.	1889.	1890.
Prisoners confined at various times—					
Males	1276	1348	1144	1031	878
Females	588	520	449	362	345
TOTAL	1864	1868	1593	1393	1223
Average number confined continuously per day—					
Males	169	177	152	175	150
Females	56	53	40	17	32
TOTAL	225	230	192	192	182
Average duration of confinement per individual prisoner.....(days)	44	45	44	50	54

Prisoners and Paupers.

It has already been shown that Tasmania is remarkably free from crime. It may here be stated that, in relation to the past, the old inmates of Gaols and Pauper Establishments are fast dying out, and with respect to the latter it is necessary to say they are of foreign importation, as may be inferred from the mean age of Male Paupers being 70 years, and more clearly still from the fact that the natives of Tasmania and Australia together do not amount to 5 per cent. of the foreign element. Apart from these considerations, it is creditable under any circumstances to find that all *inmates of prisons* only average per year 1 to every 789 of the population, while the total number of Paupers, mostly belonging to another part of the Empire, only represents 1 to every 179 of the relatively small population of the Colony with which, as a contrast, it has no natural relation. No comparison in respect of prison population can be made with the United Kingdom for the obvious reason that the *whole* of the prison population of the United Kingdom is not confined therein. As regards State-aided Paupers, the following summary shows how small is the number in Tasmania as compared with England, Scotland, and Ireland :—

PAUPERISM in Tasmania and the United Kingdom, Year 1890.

	Paupers.			Paupers per 10,000 of Population.	Cost of Maintenance per 10,000 of Population.
	In-door or registered.	Out-door or Casual.	TOTAL.		
					£
Tasmania	806*	1255	2057	143	1129
Ireland	45,561*	62,213	106,972	225	2943
Scotland	88,606†	4218	92,824	235	2214
England and Wales	192,942*	581,963	774,905	280	2997

* In-door. † Registered Poor.

Decline of Prisoners and Paupers in Tasmania.

The following Table shows how remarkably fast the foreign element in our Gaols and Pauper Establishments is dying out :—

Year.	Prisoners.		Paupers.	
	No.	Per 10,000.	No.	Per 10,000.
1873	644	62·17	1113	107·46
1874	546	52·40	1081	103·75
1875	466	44·84	1084	104·31
1876	394	37·67	1046	100·03
1877	328	30·85	994	93·51
1878	356	32·80	980	90·30
1879	351	31·56	917	82·46
1880	337	29·66	864	76·05
1881	293	24·97	895	76·29
1882	286	23·69	827	68·52
1883	249	20·02	801	64·41
1884	219	17·06	808	62·94
1885	195	14·75	780	59·09
1886	225	16·61	820	60·52
1887	230	16·45	810	57·92
1888	192	13·30	814	56·40
1889	192	12·90	806	54·16
1890	182	12·66	802	55·79

That the inmates of Prisons and Pauper Establishments have declined in a most remarkable manner during the last 17 years is clearly shown by these tables. As regards Prisoners, the relative decline is as much as 79·64 per cent. in the 17 years, and the decline in paupers is 48·08 per cent.

What better proof could be given of the fact that pauperism and crime are simply noxious foreign weeds, which find no congenial soil in Tasmania for their propagation ? Tasmania's advance in material progress is not half so cheering as this indication of her power to eliminate from her social system the noxious poisons of pauperism and crime.

Crime and Education.

The following Abstract gives particulars regarding the education of the 1223 cases already dealt with in respect of frequency of crime :—

EDUCATION of Prisoners in Gaols, 1890.

	Numerical.			Centesimal.		
	M.	F.	Total.	M.	F.	Total.
Unable to read	140	101	241	15·95	29·28	19·71
Able to read only	29	42	71	3·30	12·17	5·81
Able to read and write	707	202	909	80·52	58·55	74·32
Of superior education	2	...	2	·23	...	·16
TOTAL	878	345	1223	100·00	100·00	100·00

These proportional figures differ little from those given for 1888 and 1889. Although the larger number of offences (74·32 per cent.) have been committed by persons who could both read and write, it must be remembered that a very much larger proportion of the population over 15 years of age is composed of persons of this particular class; and if the number of prisoners yielded by each class be compared, as in the following table, it will be found that the association of crime with the degrees of ignorance is most marked. Only 1·31 per cent. of the prisoners are under the age of 15 years, and hence in comparisons it is most desirable to eliminate all ages under 15 from the estimated population.

EDUCATION of Prisoners and Population over 15 years of age compared, 1890.

Class.	Estimated Population 15 years and over, **1890.**	Number of Prisoners during **1890.**	Proportion of Prisoners yielded per 10,000 of each respective class, **1890.**
Unable to read	6927	241	347·914
Able to read only	3122	71	227·418
Able to read and write	77,788	911	117·126
TOTAL	87,837	1223	139·235

Although the class who are unable to read and write thus contribute in Tasmania proportionately about three times as many criminals as the class who are able to read and write, and while undoubtedly it is clear that the state of ignorance in itself is immediately responsible for a considerable number of offences against society, it must be always borne in mind, as ably shown by Herbert Spencer (p. 379, Social Statics), that "Ignorance and crime are not cause and effect; they are coincident results of the same cause."

Ages of Prisoners.

The following table shows to what extent certain groups of ages contribute to the criminal list for the year 1890:—

Under 15 years of age	16	1·31
15 to 25 years of age	380	31·07
25 to 65 ditto	693	56·66
65 and over	134	10·96
TOTAL	1223	100·00

Birth-places.

The following is a statement showing the percentage for 1890 of prisoners born in different countries; viz.—Australasian Colonies, including Tasmania, 55·76 per cent.; England and Wales, 17·99 per cent.; Ireland, 13·57 per cent.; Scotland, 8·42 per cent.; Other British Possessions, 1·15 per cent.; and Foreign Countries, 2·78 per cent.; Birth-places unknown, ·33 per cent.

Protection—Civil and Military Forces.

The following is a brief statement of the strength of the Civil and Military Forces for the years 1886, 1887, 1888, 1889, and 1890 :—

	1886.	1887.	1888.	1889.	1890.
Police Force—					
Municipality of Hobart .....No.	49	49	49	49	49
Ditto, Launceston .....No.	35	35	35	35	35
Rural Municipalities .....No.	118	117	116	111	104
Territorial Police Force .....No.	110	114	115	116	117
Total Police Force.....	312	315	315	311	305
Defence Force—					
Southern Division .....No.	447	416	405	287	354
Northern Division .....No.	289	423	396	337	331
Auxiliary Force .....No.	—	—	1459	1378	1421
Total Defence Force ...	736	839	2260	2002	2106
GRAND TOTAL ...No.	1048	1154	2575	2313	2411

It would appear, during 1890, that in relation to every 1000 of the population there were 2·12 Police and 14·65 Volunteers ; and in relation to area, there were for each 100 square miles 1·16 Police and 8·03 Volunteers.

The total cost of the Territorial and Municipal Police Force for 1890—£41,205—is less than the previous year (£42,751) by £1546. The cost of maintaining the Defence Forces (Volunteers) during 1890 is stated to be £12,699, which, taken together with £4138 for proportion of interest paid on Defence Construction, is equal to 2·33 per cent. of the Total General Expenditure, or about 2·34*s.* per head of the population.

CHAPTER XV.

Intellectual, Moral, and Social Provision.

Education.

The Statistics regarding the education of children at the school age (7 to 14 years) must necessarily be imperfect so long as it is not made compulsory to register all private schools, together with the names of professional or paid private instructors. If this were done, it would be an easy matter to make a yearly census on a well-chosen school-day, which would enable us to gain more satisfactory information with respect to the working of the Act, which provides for the compulsory education of all children within the limits of the ages 7 to 14.

In the two last Census years the following results were obtained, which enable us to some extent to gauge the value of our system of education in respect of children :—

School Attendance.

	Census **1881.**		Census **1891.**	
	No.	Per cent. to Total.	No.	Per cent. to Total.
Ages 7-14.				
Attending State schools	7545	39·05	12,069	49·36
Ditto Private schools	4521	23·40	5350	21·88
Receiving instruction at home	3075	15·91	2222	9·09
	15,141	78·36	19,641	80·33
Children not at school	1984	10·22	4810	19·67
Unspecified	2197	12·42		
Total persons 7 and under 14	19,322	100·00	24,451	100·00
Ages 3-20.				
Attending State schools	9996	21·06	15,062	25·81
Ditto Private schools	6772	14·26	7661	13·13
Receiving instruction at home	5848	12·32	4047	6·94
	22,616	47·64	26,770	45·88
Not at school or unspecified	24,856	52·36	31,583	54·12
Total persons 3 and under 20	47,472	100·00	58,353	100·00

The percentages of all ages receiving instruction were as follows :—State schools, 56·26 per cent.; private schools, 28·62 per cent.; and home instruction, 15·12 per cent.

It is somewhat unsatisfactory to find in the last Census returns so large a number as 19·67 per cent. unspecified in ages 7–14; but, from comparisons made with the yearly statistics furnished by the Director of Education, it is evident that the numbers returned in the Census table correspond more closely with the average number registered on the school rolls than with the

average actual attendance ; and therefore it is clear that fully 10 per cent. of the children at school-age failed to comply with the compulsory provisions of "The Education Act." This is in accord with the general results of education in ages of 7 and under 14, where it has been shown that the proportion of persons who could not read was equal to 12·28 per cent. of the total number of persons living within this age-group.

State Schools, 1890.

With respect to the years 1886, 1887, 1888, and 1890, the following table gives full particulars regarding the State Schools :—

	1886.	1887.	1888.	1889.	1890.
	No.	No.	No.	No.	No.
Estimated number of children living in Tasmania between the ages of 7 and 14 years	21,840	22,400	22,960	23,480	24,060
State Schools—					
Schools	209	215	220	229	240
Instructors	317	335	344	367	384
Ditto per 100 scholars on Roll	1·98	2·03	2·01	2·04	2·11
Scholars—					
Distinct individuals on the Roll	16,014	16,527	17,125	17,948	18,156
Ditto per 100 of the estimated number of children living between the ages of 7 and 14 years	73·32	73·80	74·59	76·44	75·46
Average on roll	11,109	11,383	12,002	12,460	12,460
Ditto per 100 of the estimated number of children living between the ages of 7 and 14 years	50·87	50·82	52·27	53·06	51·78
Average attendance	7866	8182	8730	8973	8898
Ditto per 100 of the estimated number of children living between the ages of 7 and 14 years	36·01	36·53	38·02	38·21	36·98
	£	£	£	£	£
Expenditure from public and private sources	35,763	38,957	41,629	41,067	43,052
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Ditto from public sources, per each child in average daily attendance	3 9 5	3 14 8	3 14 10	3 10 5	3 14 8
Ditto from private sources, ditto	1 1 6	1 0 6	1 0 7	1 1 1	1 2 1
Ditto from both sources, ditto	4 10 11	4 15 2	4 15 5	4 11 6	4 16 9

As compared with the previous year, it appears the number of children on the rolls of the State Schools is less proportionately (98 per cent.) when compared with the estimated number of children living at the "school age" 7 to 14. Although in relation to the latter group the number of children on the roll is equal to 75·46 per cent., the average attendance appears to be little over one-third (36·98 per cent). It must be borne in mind, however, that in addition to the State Schools the number of children receiving instruction in private schools or at home, at school age, according to results of the last census, represent 38·55 per cent. of the whole. Of the 18,156 children on

the rolls during 1890, it may be roughly estimated that only three-fourths, or 13,617 children, are actually within the school age, and hence the true proportion of children at this age upon the State and Private School rolls only represents 70·38 per cent. of the whole.

Private Schools.

Private schools still occupy an important position in Tasmania. During the year 1890 there were 101 Private Schools returned, having an attendance of 4420 scholars, of whom 2117 were boys and 2303 girls. The scholars attending them, however, appear to be fewer as compared with State Schools, as they only represent 19·58 per cent. of all scholars attending State and Private schools. The number of children receiving instruction at home cannot be ascertained, but in a thinly scattered population it is probable that it is considerable.

University of Tasmania.

The functions of the Council of Education are now merged in the Council of the University of Tasmania, established this year (see page 33).

The following is a synopsis of the Degrees, Scholarships, and Exhibitions conferred during 1890, together with the aggregate numbers conferred since 1860, also the numbers actually in force on 31st December, 1889:—

	Conferred **1890.**	Total conferred since **1860.**	Number actually conferred or in force 31 December, **1890.**
Ad Eundem Degrees.....	90	90	90
Degrees of Associate of Arts.....	†	345	345
Dry Scholarships	1	18	1
Minor Scholarships.....	...	23	1
Tasmanian Scholarships*.....	2	45	8
Exhibitions.....	5	91	18

* Those who gain this distinction are entitled to £200 a year for four years, tenable at a British University. † Now abolished.

The cost of the administration of the Tasmanian University amounted to £3000 in 1890, *i.e.*, equal to 7·18 per cent. of the total public expenditure in connection with education.

Principal Grammar Schools and Colleges.

Of the principal Grammar Schools and Colleges, sixteen have furnished returns for the year 1890. Nine of these are described as denominational, viz., Church of England, 5; Roman Catholic, 2; Wesleyan, 2; and 7 undenominational. None of the Superior Schools or Colleges receive Government aid directly, although in practice and design it is evident that the older Degree of Associate of Arts, the Minor Scholarships, and the chief prize, the Tasmanian Scholarships, were intended to bring the superior instruction afforded by these institutions into harmonious and systematic relation with the various sources of primary education. The following is a statement regarding accommodation, average attendance, &c. in respect of the institutions referred to:—

Accommodation.

Accommodation available for 2285 Students. Teachers, 97.

AVERAGE Attendance.

	1890.	1889.	1888.	1887.
	No.	No.	No.	No.
Under 6 years	222	173	116	112
6 years and under 15	815	787	911	881
15 years and upwards	369	337	413	336
TOTAL	1406	1297	1440	1329

There are 31 bursaries or scholarships, amounting in all to £429, immediately in the gift of eight out of the sixteen principal Grammar Schools. On the average there is about one instructor to 14 scholars.

Technical Schools.

Evening Schools have been successfully established in Hobart, Launceston, and Latrobe for the purpose of imparting knowledge in technical subjects to the youth of both sexes. The school in Hobart was first opened in February, 1888, and in Launceston towards the close of the same year. The following is an abstract of the subjects taught ; viz.—

CLASS I.—*Technical Art Instruction*—Including Mechanical and Freehand Drawing, Use of Scales and Instruments, Practical Geometry, Building Construction, Modelling and Carving, &c.

CLASS II.—*Mathematics and Applied Mechanics*—Including Elementary Physics, Laws of Forces, Theoretical Mechanics, &c.

CLASS III.—*Engineering*—Including practical instruction in Machine Construction, &c.

CLASS IV.—*Commercial Economy*—Including Arithmetic, Writing, Correspondence, and Book-keeping.

CLASS V.—*Chemistry.*

The Fees for all classes are as follows :—

1st grade, or elementary..... 9*d.* per week.
2nd grade, or advanced ..... 1*s.* per week.

The following table gives further particulars :—

CLASS.	Tuition, No. of evenings per week.			Scholars on Roll.	Average attendance.
	Hobart.	Launceston.	Latrobe.		
Art	5	5	3	106	69
Mathematics.	4	2	...	54	32
Machine Construction	2	2	...	44	21
Chemistry ...	2	...	...	32	21
Book-keeping	2	...	...	14	7
TOTALS	15	9	3	250	150

Number of Masters—Hobart, 5 ; Launceston, 3 ; Latrobe, 1. Total, 9.

The cost of these classes in Hobart, Launceston, and Latrobe for the year 1890 is stated to be £1647.

Besides the regular classes in Hobart, popular lectures on technical education were voluntarily delivered on several occasions by gentlemen interested in the success of these schools; and a special course of instruction in cookery was well attended by ladies (70 on roll) during the months of December (1889) and January (1890). Hitherto the accommodation for students in Hobart was very limited, but this difficulty is now removed, as the Government have erected suitable buildings as a Technical College in Bathurst-street.

These Schools are under the direction of Local Boards of Advice, the members of which are appointed and act directly under the Minister of Education. The Schools are much prized by apprentices and others, who at this stage are enabled to gain practical knowledge of many subjects of the greatest importance to them in their special crafts, and for which no proper provision has been made hitherto in ordinary systems of education.

Industrial and Ragged Schools.

In connection with the various Ragged Schools there was an average daily attendance during the year 1890 of 306 children (149 boys and 157 girls); the average number on the rolls was 504. The cost of maintenance was £519, equal to £1 0*s.* 6*d.* per scholar per year, of which Government contributed 93·84 per cent. As compared with the previous year the average attendance of children was less by 16, and the expenditure shows a decrease of £53.

In the various Industrial Schools there were maintained during the year on an average 155 children (33 males and 122 females), at a cost of £3138, or £20·24 per head. Of the total expenditure the General Government subscribed about 48·82 per cent. The expenditure has increased £351 as compared with 1889.

Training Schools.

The average number of inmates in the Training Schools during the year was 57, (40 boys and 17 girls). The net cost of maintenance was £1457, or £21 17*s.* 7*d.* per head.

Public Libraries.

So far as information can be obtained there were 38 Public Libraries open to the public during the year 1890. In all they contain 67,390 volumes. The receipts for the year amount to £2859, in addition to £917 subscribed by the Government. These Libraries are open at convenient hours during working days, and appear to be well attended.

Tasmanian Museum and Botanical Gardens.

Tasmanian Museum.—During 1890 the Tasmanian Museum, as usual, has received many valuable additions to its collections, and these have been very much improved as regards arrangement and classification by its present indefatigable Curator, Mr. A. Morton. Receipts, £565. Expenditure, £597.

Botanical Gardens.—The Botanical Gardens continue to be well patronised for purposes of recreation and instruction. The receipts amounted to £924, of which £124 was derived from the sale of plants, and £800 was received from the Government. The expenditure, £908, was less than the receipts by £16.

Royal Society of Tasmania.

The Report of the Royal Society shows no diminution of interest, and the original papers read on various branches of science have generally been of a very high order. The published *Papers and Proceedings* are becoming more important year by year, and it is evident from a study of their contents that, whilst the status of the Society as a scientific body has been conserved, there have been discussed many questions of great public utility which cannot fail to produce a beneficial influence. Valuable donations have been made to the Library during the year. The Fellows of the Society number about 200.

Hospitals.

The following statement contains some of the more interesting particulars regarding the various Hospitals and Hospitals for the Insane for the years 1886, 1887, 1888, 1889, and 1890:—

	1886.	1887.	1888.	1889.	1890.
Institutions ..... No.	8	8	8	10	9
Accommodation for.. No.	650	715	674	682	687
Individual cases treated, In-patients No.	2501	2763	2634	2512	2716
Ditto, Out-patients No.	3686	2894	2249	5626	4920
In-patients treated as Insane ..... No.	383	401	398	409	417
Ditto per cent. to total In-patients....	15·31	14·51	15·11	16·28	15·35
Persons died..... No.	226	277	398	249	206
Percentage of Deaths to cases treated	9·04	10·03	15·11	9·91	7·58
Daily average in Hospitals ..... No.	490	538	520	533	531
Total cost..... £	28,177	29,141	27,153	29,262	30,132
Cost per case per year	£11 5*s.* 4*d.*	£10 10*s* 11*d*	£10 6*s.* 2*d.*	£11 12*s.* 1*d.*	£10 17*s.* 3*d.*
Proportion of Government aid to total contribution..	78·25	79·92	80·15	80·91	78·52

As regards the Cost per head, and per case, of the various Hospitals, the following is a comparative statement regarding the various Institutions :—

Cost per Head of Hospital Inmates.

	1886. Cost per Head per Year.	1887. Cost per Head per Year.	1888. Cost per Head per Year.	1889. Cost per Head per Year.	1890. Cost per Head per Year.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1. Hospital for Insane, Cascades	38 13 9	39 19 3	37 1 2	31 8 5	18 0 0
2. Hospital for Contagious Diseases, Launceston	38 4 2	40 0 0	57 3 6	34 5 11	25 3 9
3. Hospital for Insane, New Norfolk	42 12 6	37 10 5	35 16 4	40 0 8	39 16 4
4. Hospital for Contagious Diseases, Cascades	98 1 9	69 7 10	71 3 2	72 1 0	72 2 5
5. General Hospital, Launceston	70 14 5	70 16 7	75 6 11	74 18 7	81 3 2
6. General Hospital, Hobart	91 12 1	90 17 6	92 0 0	93 17 3	93 3 3
7. New Norfolk Cottage Hospital	...	...	...	134 5 0	...
8. Waratah Hospital	262 15 6	287 6 8	397 5 2	134 8 0	456 2 1
9. Campbell Town Hospital	272 10 7	216 16 9	84 9 2	242 16 7	77 5 5
10. Devon Cottage Hospital	...	...	...	...	127 14 1

Cost per Case.

	1886. Cost per Case.	1887. Cost per Case.	1888. Cost per Case.	1889. Cost per Case.	1890. Cost per Case.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1. New Norfolk Cottage Hospital	...	...	...	3 11 8	...
2. Hospital for Contagious Diseases, Launceston	7 12 10	4 15 10	5 7 2	4 7 7	3 12 0
3. General Hospital, Launceston	5 11 6	5 11 2	6 2 3	6 7 1	6 0 8
4. General Hospital, Hobart	6 9 1	6 11 4	6 15 0	7 19 4	6 19 0
5. Devon Cottage Hospital	...	...	...	9 5 3	9 5 3
6. Hospital for Contagious Diseases, Cascades	16 16 11	7 1 4	6 5 7	9 7 11	9 8 1
7. Campbell Town Hospital	15 11 6	11 12 9	4 16 3	14 12 6	12 5 0
8. Hospital for Insane, Cascades	35 1 3	37 14 9	36 8 0	29 14 8	18 0 0
9. Hospital for Insane, New Norfolk	36 9 1	31 16 6	30 13 4	34 17 7	32 16 0
10. Waratah Hospital	25 0 6	52 4 11	36 2 3	45 14 9	50 13 7

Charities.

Pauper Establishments.

The following is a general statement regarding the persons maintained in the Pauper Establishments in Hobart and Launceston during the years 1886, 1887, 1888, 1889, and 1890 :—

	1886.	1887.	1888.	1889.	1890.
Accommodation for Inmates, No. ...	892	882	882	891	883
Individual cases maintained.....	1752	1748	1658	1632	1635
Average maintained—					
Male, No.....	609	607	610	604	597
Female, No.	211	203	204	202	205
Total	820	810	814	806	802
Persons maintained per 10,000 of the population	63	60	59	58	56

As regards age of paupers, it is interesting to note that 93·82 per cent. of the whole were over 55 years of age. As regards education, 47·45 per cent. could read and write ; 11·94 per cent. could read only ; and 40·61 per cent. could neither read nor write. It is noteworthy that the educational standard of paupers is considerably below that of the imprisoned criminals for the same year. The result cannot even be attributed to the extreme age of the former, for the Census of 1891 shows that, of the persons at ages 55 and upwards of the general population, 72·03 per cent. could read and write. Relatively to population the number of Paupers has slightly decreased as compared with the previous year. In 1882 there was 1 pauper to every 144 persons ; in 1883 there was 1 pauper to every 153 peosons; in 1884 there was 1 pauper to every 155 persons; in 1885 there was 1 pauper to every 164 persons; in 1886 there was 1 pauper to every 159 persons; in 1887 there was 1 pauper to every 165 persons ; in 1888 there was 1 pauper to every 169 persons ; in 1889 there was 1 pauper to every 174 persons; and in 1890 there was 1 to every 179 persons.

The total expenditure for the year was £11,417, or £14 2*s.* 3*d. per head* average of daily inmates. These figures differ little from those of the previous year. Nearly the whole of the cost of the Pauper Institutions is provided for by the General and Imperial Governments.

In addition to the above the Government also make provision for Orphans and for the relief of the Outdoor or Casual Poor and their dependents. In the year 1890 there were 1255 persons (596 adults and 659 children) provided for in this way, the cost being £4816, or an average of £3 16*s.* 9*d.* for each recipient. The amount of pauperism in Tasmania, which happily is rapidly diminishing, is comparatively small when compared with the State-aided Poor of the United Kingdom, as shown in the following summary for the year 1890 :—

PAUPERISM in Tasmania and the United Kingdom compared, Year 1890.

	Paupers, No.			Total Cost.	Per 10,000 of Population.			
					Paupers, No.			Cost.
	In-door or Registered.	Out-door or Casual.	Total.		In-door.	Casual.	Total.	
				£				£
Tasmania	802*	1255	2057	14,564	56	87	143	1129
Ireland	44,759*	62,213	106,972	1,409,280	93	130	223	2943
Scotland	88,606†	4218	92,824	874,389	224	11	235	2214
England and Wales	97,745*	689,800	787,545	9,301,369	35	245	280	2997

* In-door. † Registered.

Out-door Relief and Benevolent Societies.

Besides the charities administered through the regular Pauper Establishments, the following abstract shows the extent of relief or provision made by the Benevolent Societies in Hobart and Launceston, and by the Out-door Relief and Boarding-out Systems under the control of the Administrator of Charitable Grants :—

OUT-DOOR RELIEF AND BENEVOLENT SOCIETIES.

PERSONS relieved or provided for.

Name.	1889.			1890.		
	No. relieved or provided for.	Amount.	Amount per Head.	No. relieved or provided for.	Amount.	Amount per Head.
		£	£ s. d.		£	£ s. d.
Benevolent Societies—						
Hobart	453	753	1 13 3	336	482	1 8 8
Launceston	462	894	1 18 8	807	924	1 4 1
TOTAL	915	1647	1 16 0	1143	1406	1 4 7
Out-door Relief (Government)	1141	3483	3 1 0½	1139	3147	2 15 3
Boarding-out System (Government)	116	1657	14 5 8	116	1669	14 7 8
GRAND TOTAL	2172	6787	4 10 6	2398	6222	2 11 11

Hospitals and Public Charities generally.

Exclusive of the large expenditure in connection with Hospitals, Ragged and Industrial Schools, it would appear from statistical tables that the Pauper and Benevolent Institutions (State and Private) expended a sum of £17,677 in the relief of 3200 distinct individual cases, equal to a sum of £5 10*s.* 6*d.* per case, or 2*s.* 5·52*d.* per head of population, of which the General Government contributed £15,830, or 89·54 per cent.

The total amount expended by the General Government upon Hospitals and Charities of all descriptions for the year 1890, is £54,034, equal to 7·48 per cent. of the total General Expenditure for the year, and representing 7*s.* 6*d.* per head of the population.

Life Assurance.

The following information has been obtained with respect to Life Assurance on the 31st December of the years 1886, 1887, 1888, 1889, and 1890:—

	1886.	1887.	1888.	1889.	1890.
Societies, No.	10	10	8	8	11
Policies in force, No. ...	8601	9019	9394	10,137	14,138
Ditto, Amount.....	£2,393,438	£2,495,532	£2,576,187	£2,816,652	£2,935,268
Policies void during year, No.	382	507	568	386	999
Ditto, Amount.....	£72,450	£121,085	£113,686	£133,086	£171,535
Average amount assured per Policy-holder	£278	£277	£274	£278	£208
Ditto, per Society	£239,344	£249,553	£322,023	£352,082	£266,843
Ditto, per head of Population.....	£18·35	£18·65	£18·78	£20·08	£20·42
Policies secured per 100 of Population	6·59	6·74	6·85	7·23	9·84
Estimated ditto per 100 of adult ditto	13·32	13·61	13·83	14·59	19·86

Thus it would appear from the above table that the business of the various Societies has made steady progress during the last five years.

Building Societies.

From the following Statement it will be observed that there are 5 Societies in operation in Tasmania, with 4361 Members, possessing 16,736 shares, or on the average 3·84 shares per Member. The total income during 1890 was equal to £223,801, and the advances made during the same period amounted to £113,420. The working expenses were £4877, and assets £536,174.

Tasmanian Building Societies, 1886–90.

	1886.	1887.	1888.	1889.	1890.
Number of Societies	6*	6*	6*	5*	5*
Number of Members	2788	3480	3954	4373	4361
Number of Shares	15,078	18,311	20,372	16,049	16,736
Advances made during 12 months prior to date of last balancing	£100,537	£162,290	£154,879	£137,096	£113,420
Total Income during 12 months prior to date of last Balance Sheet (exclusive of deposits)	£156,730	£156,151	£187,632	£271,796	£223,801
Working Expenses during 12 months prior to date of last Balance Sheet	£2907	£3584	£3802	£4319	£4877
Assets at date of last Balance :—					
Balance due on Mortgage Securities (not including prospective interest)	£291,417	£394,772	£474,596	£526,007	£536,174
Amount invested in other Securities, and Cash	£9225	£15,446	£9462	£17,007	£19,994
Liabilities at date of last Balance :—					
To the Holders of Shares	£139,880	£155,400	£204,043	£232,395	£252,532
To Depositors and other Creditors	£154,632	£229,894	£274,738	£303,081	£303,636
Amount of Deposits at date of last Balance	£138,794	£215,604	£267,479	£290,142	£284,448

* All of which are Permanent.

Friendly Societies.

Owing to the alteration of the laws relating to Friendly Societies, commencing on 1st January, 1888, the mode of keeping accounts and preparing yearly returns has been so much affected that it is almost impossible as yet to get a complete set of returns.

The difficulties in some cases are owing to the fact that many of the Societies have not hitherto kept their books in such a manner as would yield the information required by the amended Act, "Friendly Societies Act, 1888." It is also necessary to state that many of the Societies are small, and are for economy's sake managed by handicraftsmen, and, although a very intelligent class as such, they are not always skilled in book-keeping; and however willing the Secretary for the time may be to comply with the new requirements, his perplexities often tempt him to shirk or postpone complying with the frequent calls made by the Statistician for the necessary information. It is estimated that there are 102 Societies in Tasmania, but of these only 94 Societies complied with the Act in forwarding returns to the Statistician for the year 1890.

The Progress made during the last Ten Years.

The progress made by the various Societies during the years 1880, 1885, and 1890 is indicated by the following comparison :—

	1880.	1885.	1890.
Branches and Districts	47	83	94
Members	3937	7541	9466
Receipts .....£	13,282	20,893	28,980
Expenditure.....£	10,415	18,728	26,467
Capital .....£	30,026	49,723	65,158

From the figures for 1890 it is interesting to notice that 9466 persons, equal to 6·51 per cent. of the total population, or 24·13 per cent. of the adult males, belong to some Friendly Society. When we consider the information forwarded by 94 out of an estimated number of 102 lodges which have rendered returns, it is clear that the interests of Friendly Societies are of the widest national importance, and it is probable that over one in every five adult males belong to some Society.

During the year 1885 the financial condition of the various Friendly Societies of the Colony was specially examined for the Government by Mr. Evan F. Owen, the able Actuary for Friendly Societies in the Department of the Government Statist of Victoria. In the valuable report prepared by Mr. Owen he indicated generally that the scale of periodical payments adopted by the various Societies was too low to secure the objects for which liabilities are incurred; that the rates of entrance fee, graduated in respect of age, were, in many cases, either imperfectly appropriated or unsatisfactory in their determination; and that the present values of all possible assets were at least from 11·2 to 36·2 per cent. below the estimated present values of liabilities.

Mr. Owen's recommendations were—to raise the rate of contributions for benefits; to abolish the entrance fee, and in lieu thereof to adopt a graduated rate of weekly contributions. He also recommended amendments in the existing law, and suggested the establishment of a department similar

to that in Victoria, to which would be entrusted registration, periodical audit and valuation, and other important matters affecting the welfare of Societies. The Bill passed in 1888 was designed to meet the greater part of these requirements.

Receipts and Expenditure, Year 1890.

The following is an abstract of the various tables relating to the Societies for the year 1890 :—

	Subordinate Lodges.				District Lodges.			
	Sick and Funeral Fund.	Incidental and Management Fund.	Other Funds.	Total.	Funeral Fund.	Management Fund.	Other Funds.	Total.
Receipts—	£	£	£	£	£	£	£	£
Contributions	14,344	8015	1017	23,376	2430	648	492	3570
Initiation and Clearance Fees	548	329	...	877	...	...	...	...
Interest	1411	342	81	1834	532	175	163	870
Funeral Donations	324	...	...	324	...	...	...	...
Other Receipts	609	914	118	1641	...	271	23	294
Total Receipts	17,236	9600	1216	28,052	2962	1094	678	4734
Expenditure—								
Sick Pay	7417	...	...	7417	...	...	18	18
Medical Expenses, &c	2382	5464	...	7846	...	...	...	...
Levies to District	3002	932	25	3959	...	...	...	...
Funeral Donations	1357	...	...	1357	2926	...	270	3196
Management	727	1850	292	2869	...	529	...	529
Other Expenditure	700	1214	504	2418	...	664	...	664
Total Expenditure	15,585	9460	821	25,866	2926	1193	288	4407
Balance to Credit—								
At beginning of year	35,815	3582	1767	41,164	16,520	492	3858	20,870
At close of year	37,566	3722	2162	43,450	16,556	393	4248	21,197
Disposal of Funds—								
Investments at Interest in Banks	...	...	...	18,618	...	...	...	2379
Halls, &c.	...	...	...	3610	...	...	...	...
Other Investments	...	...	...	18,074	...	...	...	18,609
Bank account current	...	...	...	2211	...	...	...	353
Cash in hands of Trustees	...	...	...	1273	...	...	...	31
TOTAL	...	...	...	43,786	...	...	...	21,372

Total Funds Invested, £65,158, or an average of £6 17*s.* 8*d.* per member.

Deaths and Sickness of Members.

Out of 9466 members during 1890, 100, or 1·06 per cent., died. 1282 members were admitted by initiation and clearance; and there were 1047 departures, 607 of which were due to arrears. There were upon the sick list 1495 members, or 15·79 per cent. The average sickness of the 1495

members was above the average of former years, being equal to 42·34 days per sick member, and the sick relief afforded to them by the various Societies, apart from the regular provision for medical attendance, amounted to £7417, or £4·96 per sick member per year, equivalent to 15*s* 8*d*. per head of the total number of members on the lists.

Ages and Conjugal Relationship.

There were 4114 wives of members classified as "registered wives;" but this does not indicate the full number of married persons. Of the 9466 members, the ages of 8337 only have been ascertained, as follows:—

Years.	Ages, 1890.	Per cent.	
		1889.	1890.
	No.		
Under 20	571	6·86	6·85
20–25	1553	18·96	18·63
25–30	1837	22·31	22·03
30–35	1539	18·33	18·46
35–40	1130	12·70	13·55
40–45	697	8·27	8·36
45–50	462	5·12	5·54
50–55	230	3·02	2·76
55–60	154	2·15	1·85
60–65	85	0·97	1·02
65–70	54	0·72	0·65
70 and over	25	0·59	0·30
TOTAL	8337	100·00	100·00

In 1889 the mean age of 7448 members—only 7·45 per cent. of whom were over 50 years—is nearly 31·5 years. In 1890 the mean age of 8337 members—only 6·58 per cent. of whom were over 50 years—is nearly 32·5 years.

Friendly Societies.—Decennial Return.

Year.	*No. of Lodges and Districts which filed Returns.*	*No. of Members.*	*Receipts.*	*Expenditure.*	*Capital.*
			£	£	£
1881	43	4164	13,909	11,250	30,240
1882	50	4815	15,258	12,639	34,345
1883	66	5944	15,940	14,126	40,502
1884	75	6545	17,826	18,020	43,210
1885	83	7541	20,893	18,728	49,723
1886	92	8154	22,133	20,225	52,468
1887*	—	—	—	—	—
1888†	80	7151	23,038	20,376	53,312
1889	89	8692	26,307	23,104	59,523
1890‡	94	9466	28,980	26,467	65,158

* Owing to the introduction of new Act it was impossible to obtain Returns for this year.

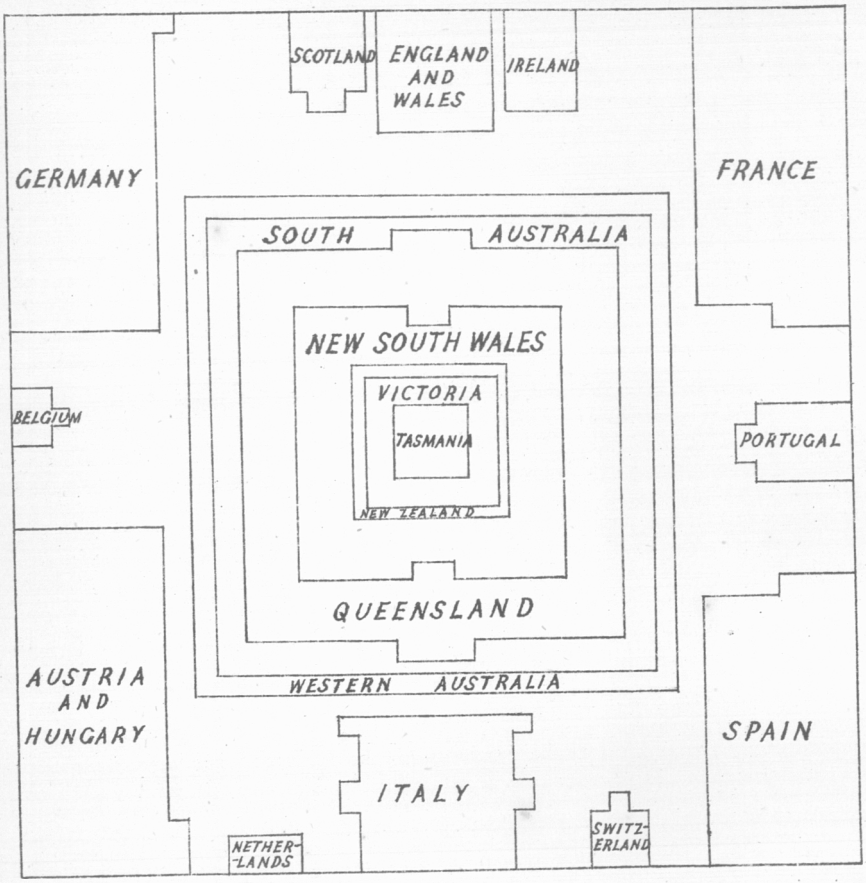
† Total number of Lodges estimated, 99, of which only 80 furnished Returns.

‡ „ „ „ „ 102, „ 94 „ „

Police Provident Fund.

The invested Provident Funds of the Territorial and Urban Police Force amount to £18,400. There are 195 members. The number of Members who retired during the year 1889 was 22, and the retiring allowances made were £716.

AREA OF AUSTRALASIA AND PRINCIPAL COUNTRIES COMPARED

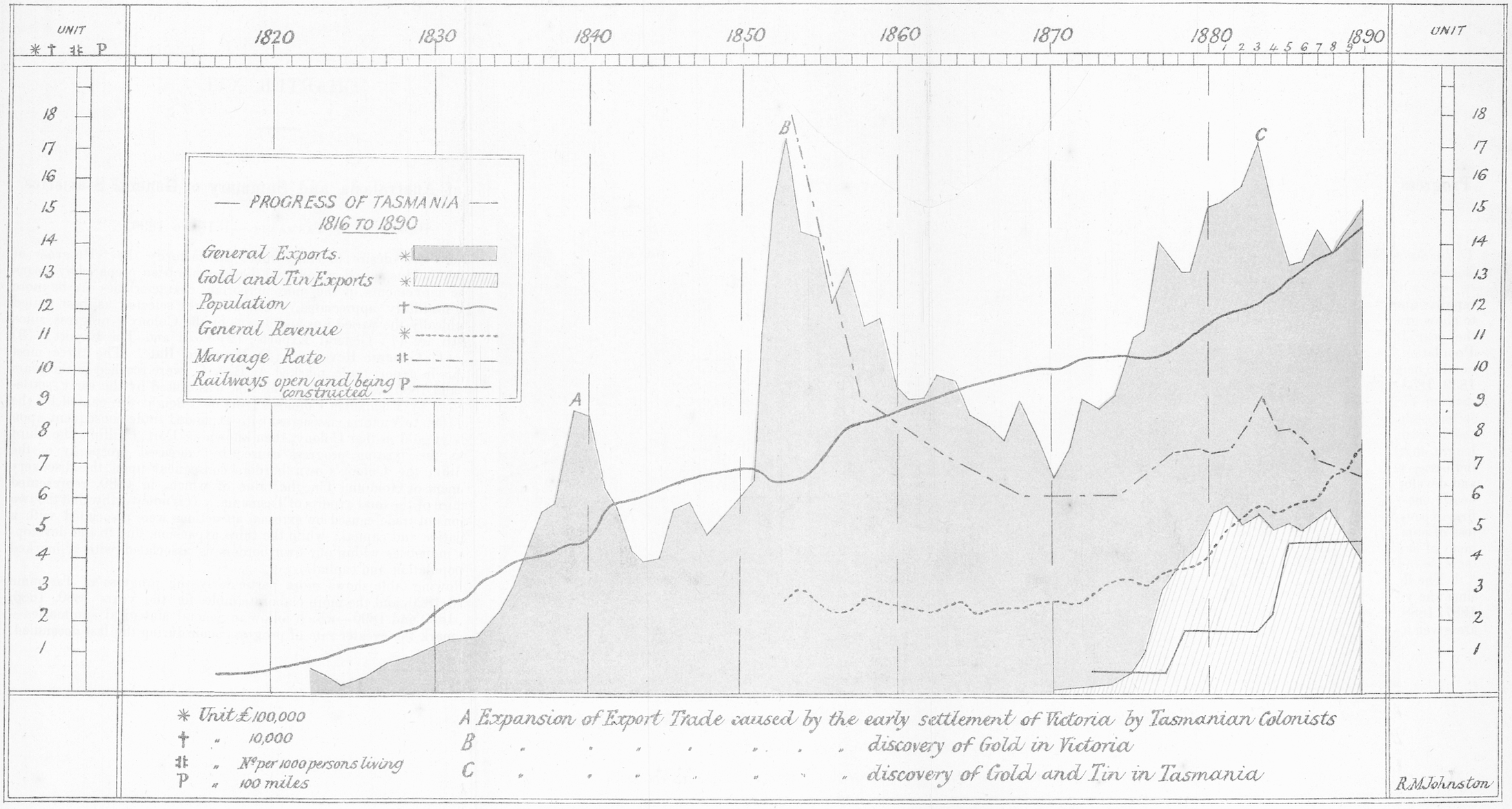


	AREA IN SQUARE MILES
Australasia	3,161,018
Western Australia	1,060000
South Australia	903,690
Queensland	668.497
New South Wales	310,700
Austria & Hungary	240,942
Germany	212,028
France	204,092
Spain	191,100
Italy	114,926
New Zealand	104,032
Victoria	87,884
England & Wales	58,186
Portugal	36,510
Ireland	32,531
Scotland	29,820
Tasmania	26,215
Switzerland	15,992
Netherlands	12,648
Belgium	11,373

	AREA IN SQUARE MILES
Canada	3,448,542
U.S. America	3,557,000
Russian Empire	8,469,704
British Empire	8,202,749
Europe	3,756,002
Asia	17,208,208
Africa	11,511,776
America	14,850,631
Australasia & Polynesia	3,455,802
Polarland	1,728,585
Worlds area	52,511004

R.M. Johnston

— PROGRESS OF TASMANIA 1816 TO 1890 —



CHAPTER XVI.

Progress of Australasia and Summary of General Statistics.

Progress of Tasmania.—1816 to 1890.

To enable those who desire to study more satisfactorily the "Progress of Tasmania" within this period, a coloured diagram has been prepared by means of which the movements of the more important characteristics can be more rapidly and faithfully appreciated. The features selected as best suited to show graphically the varied ups and downs of the Colony's progress since the year 1816 are (1) General Exports; (2) Gold and Tin Export; (3) Population; (4) General Revenue; (5) Marriage Rate. The three most notable heights in export trade, marked A, B, & C, were reached in the years 1839, 1853, and 1885 respectively. The first was caused by the early settlement of Victoria by Tasmanian Colonists; the next height was caused by the second emigration to Victoria, associated with expanded trade consequent upon the discovery of gold in that Colony, then known as Port Phillip; the third height marks the existing progress caused by increased prosperity of the industries within the Colony's own borders consequent upon the discovery and development of Gold and Tin, the value of which, in 1889, represented nearly one-third of the total exports of Tasmania. It is noteworthy that the two first expansions of trade caused by external attractions were associated with a loss of population and capital; while the third expansion, due to the development of new industries within our own borders, is associated with a marked increase in population and capital.

The following table shows more particularly the progress of Tasmania since the year 1820, and the more elaborate tables for the years 1880, 1886, 1887, 1888, 1889 and 1890—which follow in general statistical summaries—are given to mark the greater rate of progress made during the last decenniad.

Progress of Tasmania since 1820.

	1820.	1830.	1840.	1850.	1860.	1870.	1880.	1890.	Per cent. Increase, Actual. Since 1880.	Per cent. Increase, Actual. Since 1850.	True Annual Rate of Increase. Since 1880.	True Annual Rate of Increase. Since 1850.
Population ..... No.	5400	24,279	45,999	70,571	87,775	100,765	114,762	145,290	26·60	105·9	2·39	1·82
Revenue ..... £	...	18,879	94,009	74,560	263,574	270,128	442,145	758,100	71·46	917·	5·54	5·97
Public Debt ..... £	...	...	...	...	...	1,268,700	1,943,700	6,432,800	230·95	...	12·71	...
External Trade ..... £	70,000	401,278	1,855,363	1,272,390	2,030,580	1,441,625	2,881,154	3,328,318	15·52	161·5	1·45	2·43
Shipping ..... tons	30,000	51,627	151,782	212,865	234,415	212,910	413,303	951,247	130·2	346·9	8·70	3·82
Railways—												
Miles open ..... No.	...	...	...	...	...	...	168	399	100·40	...	9·04	
Capital invested..... £	...	...	...	...	...	...	1,541,272	3,088,882	100·40	...	7·20	
Gross Receipts ..... £	...	...	...	...	...	...	73,740	186,934	153·40	...	9·75	
Net Receipts ..... £	...	...	...	...	...	...	5253	18,594	254·00	...	13·47	
Land in Cultivation... acres	3178	55,976	124,103	168,820	218,315	330,257	373,299	517,174	38·54	206·3	3·31	2·84
ditto in Crop..... acres	...	...	...	...	152,860	157,410	140,788	157,366	11·77	...	1·12	
Live Stock—Cattle..... No.	6889	85,942	92,101	82,761	83,366	101,459	127,187	162,440	27·72	96·28	2·48	1·70
Sheep ..... No.	42,003	680,740	1,089,987	1,822,320	1,700,930	1,349,775	1,783,611	1,619,256	9·21	11·99	0·97	0·30
Horses ... No.	111	3387	11,850	18,391	21,034	22,679	25,267	31,165	23·34	69·46	2·12	1·33
Pigs ..... No.	...	...	...	31,000	31,290	49,432	48,029	81,716	70·12	163·6	5·46	3·57
Wool Exports ..... £	...	29,191	223,667	248,869	370,427	246,402	542,244	419,179	–22·70	68·44	–2·61	1·31
Gold, Silver, and Tin Exports ..... £	...	...	...	...	...	7475	543,391	400,618	–26·78	...	3·10	
Coal produced ..... tons	...	...	...	...	...	...	12,219	53,812	340·3	...	15·98	
Agricultural Products ... £	...	...	...	...	1,042,541	...	...	962,751				
Pastoral Products ..... £	...	...	...	...	811,654	...	...	1,414,505				
Property assessed—	...	...	...	...	...	...	708,348	1,080,139	52·43	...	4·31	
Annual value ..... £												
Capital value ..... £												
Private Wealth... million £	...	...	...	...	...	25	31	42	35·48	...	3·08	
Population—True annual rate of increase in each decade *	...	16·22	6·60	4·38	2·21 *(4·81)	1·39 in 70 yrs.	1·31	2·39				

In the foregoing table it will be observed the annual rates of increase as regards population and other matters is abnormally large in the earlier decades. As regards population this is mainly due to the large proportion which migration bears to natural increase when the numbers are small. As the population increases, at a more or less uniformly low annual rate, the proportion of increase due to migration becomes less and less, until it approaches nearly to the normal annual rate of natural increase, which, for the last twelve years, averaged 1·88 per cent. During the decades 1870 and 1880 the balance of migration was against the Colony, and this explains why, in these two decades, the annual rate of increase fell below the average rate of natural increase. The increase in population during the last decade, 30,532, is absolutely larger than during any previous decade, being equal to 26·60 per cent. Its true annual rate of increase, however (2·39 per cent.) although more than double that of European countries, and higher than in the two previous decades, is insignificant as compared with the abnormally high annual rates of decades ending 1830, 1840, and 1850. As population is the principal factor which determines increases in trade, production, and wealth, the same reasoning also holds good, to a large extent, for the varying rates of increase in the latter, which are given in the last four columns of the table.

PROGRESS OF AUSTRALASIA SINCE 1830.

The table which follows gives, for the whole of the present seven colonies of Australasia, similar information to that contained in the previous table for the Colony of Tasmania :—

General Progress of Australasia since 1830.

	Unit.	Absolute.							Relative to 1890.			
									Per cent. Increase since		True Annual Rate of Increase since	
		1830.	1840.	1850.	1860.	1870.	1880.	1890.	1850.	1880.	1850.	1880.
Independent British Colonies*...	...	3	5	5	7	7	7	7				
Population	Thousands, No.	71	210	428	1,221	1,899	2,724	3,792	790	39·2	5·60	3·36
Revenue	„ £	105	715	950	5,802	8,809	17,071	29,396	2985	71·7	8·95	5·53
Public Debt	„ £	...	...	58	9,721	36,170	89,910	183,470	3166	104·0	22·33	7·39
Shipping	„ tons	112	378	916	2,967	4,241	8,553	15,395	1586	80·0	7·31	6·05
External Trade—												
Exports	„ £	287	2,299	3,906	21,942	30,808	48,867	64,674	1556	32·4	7·27	2·84
Imports	„ £	676	4,306	4,135	27,780	29,465	45,050	67,691	1536	50·3	7·24	4·16
Total External Trade	„ £	963	6,605	8,041	49,722	60,273	93,917	132,365	1546	40·7	7·54	3·49
Wool Exports	„ £	64	866	2,821	4,982	9,961	21,558	24,067	753	11·6	5·50	1·11
Gold, Tin, and Silver Exports	„ £	...	...	...	...	...	8,000	13,060	...	63·25	...	5·02
Railways—												
Miles open and being constructed	No.	...	...	...	126	952	4,881	13,152	...	169·4	...	10·42
Capital invested in construction	Thousands £	...	...	...	...	...	51,000†	107,713	...	169·4	...	10·42
Telegraphs .....mls. poles	No.	...	...	...	...	...	27,831	44,682	...	60·6	...	4·85
Agriculture—												
Land in Cultivation.....acres	Thousands, No.	126	256	491	1,555	3,729	6,844	9,249	178	35·1	7·61	3·06
Wheat.....acres	„ No.	...	...	...	...	...	3,777	3,537	...	...	...	—0·66
„ Produce.....bush.	„ No.	...	...	...	...	...	31,577	32,840	...	...	...	0·39
Oats.....acres	„ No.	...	...	...	...	...	393	617	...	...	...	4·61
„ Produce.....bush.	„ No.	...	...	...	...	...	10,127	15,805	...	...	...	4·55
Barley.....acres	„ No.	...	...	...	...	...	153	150	...	...	...	—0·20
„ Produce.....bush.	„ No.	...	...	...	...	...	2918	2788	...	...	...	—0·46

Live Stock—													
Sheep	„	No.	1,331	6,072	16,364	22,614	51,339	72,160	114,079	597	58·1	4·97	4·69
Cattle	„	No.	356	958	1,895	4,151	4,715	8,226	10,799	470	31·3	4·45	2·76
Horses	„	No.	16	65	160	460	799	1,230	1,697	961	38·0	6·08	3·27
Real Estate (Private)—													
Assessed Annual Value	Millions	£	...	...	...	...	...	...	31·740†				
Capital Value	„	£	...	...	...	...	...	...	666				
Private Wealth	„	£	...	...	64†	183†	...	...	1175†				
Population—													
True annual rate of increase in each of the decades immediately preceding	Per cent.		7·64	11·45	7·38	11·05	4·52	3·68	3·36				
Ditto since year 1820	Per cent.		7·64	9·53	8·81	9·37	8·38	7·58	6·97				

* The following are the dates when the various divisions were established as Independent British Colonies; viz.:—

New South Wales	19 January, 1788.
Tasmania	— December, 1825.
Western Australia	— January, 1829.
South Australia	30 December, 1836.
New Zealand	5 February, 1840.
Victoria	1 July, 1851.
Queensland	10 December, 1859.

† Estimated.

Comparative Progress of the various Colonies.

Although much depends upon the wisdom and energy of men in framing wise laws and promoting industries, the developmental progress of young colonies depends, in a greater measure than is generally acknowledged, upon the extent and the natural conditions of the lands open to colonising efforts.

The whole fabric of the earlier stages of a colony depends mainly on the agricultural and pastoral industries ; and successful enterprise in these, again, depends largely upon the natural facilities offered in the various lands open for selection to immigrants from other densely populated centres. Among the principal factors which determine the progress of settlement in the earlier stages of a colony's history are climate, suitability of soil for agricultural or pastoral pursuits, and nearness of producing centres to market or seaboard. At the beginning the first-class or more accessible areas attract the attention of settlers, but the rate of settlement in each colony greatly diminishes as the poorer or less accessible areas are approached. Thus, in the earlier stages, the smaller areas open to settlers in Tasmania and Victoria show a much more rapid development, owing to their accessibility, more favourable climate, and richer soil attracting a larger proportion of the continuous stream of enterprising immigrants from European centres. The very much greater rate of settlement, however, is soon checked by the limited areas of the smaller colonies, and the stream of immigration gradually diverges to the less favourable climate, and the second-class pastoral land of the larger colonies, as in New South Wales and Queensland.

Broadly speaking, the development of a new colony passes through three great successive predominating stages, partly overlapping—

(1.) The predominance of the Pastoral stage.
(2.) The predominance of the Agricultural stage.
(3.) The predominance of the Manufacturing stage.

The last of these stages is a long way off, so far as the Australasian Colonies are concerned, because density of population, involving a struggle for existence among the labouring classes, is essential to the establishment of great manufacturing industries which can successfully and independently compete with other countries in the external or open markets of the world ; but pastoral and agricultural interests alone cannot support many persons to the square mile of territory, and hence, in young colonies, the rate of development, so far as population is concerned, is usually less rapid when all the available lands have been encroached upon, and when the manufacturing stage is approached. It must be confessed, however, that the relative progress of Victoria as compared with New South Wales (the former having developed much more rapidly than the latter), does not show, as yet, any great diminution in its rate of development, even although it has now arrived at a stage which shows a density of population per square mile of territory (12·82) three and a half times greater than that of the older or mother colony.

It is utterly misleading, by means of aggregates, to discuss the relative development of Colonies whose areas vary in extent in the relative proportions of from 1–40 ; thus—

Area Square Miles.

Tasmania.....	26,215,	equivalent to	1	
Victoria.....	87,884,	,,	3⅛	nearly.
New Zealand.....	104,032,	,,	4	,,
New South Wales	310,700,	,,	12	,,
Queensland.....	668,497,	,,	25½	,,
South Australia	903,690,	,,	34	,,
Western Australia.....	1,060,000,	,,	40	,,

It is true the population of the Colony of New South Wales (which is nearly four times the size of Victoria) has nearly approached the population of Victoria at the close of 1890, but this does not afford any proof of a superior rate of development.

The only means whereby the rate of progress can be measured in Colonies whose aggregates are mainly increased by fresh areas brought under occupation, is by relation to total area, as in the following comparison :—

PROGRESS of Population per Square Mile during the two Quinquenniads.

Colony.	Density of Population per Square Mile.					Increase per Square Mile.		True Annual Rate of Increase.	
	1850.	1860.	1870.	1880.	1890.	Since 1850.	Last Decade.	Since 1850.	Last Decade.
1. Victoria	0·87	6·12	8·26	9·78	12·89	12·82	3·21	6·96	2·80
2. New Zealand	0·21	0·76	2·38	4·64	5·99	5·78	1·35	7·47	2·58
3. Tasmania	2·69	3·35	3·84	4·38	5·54	2·85	1·16	1·82	2·39
4. New South Wales	0·61	1·12	1·60	2·39	3·61	3·00	1·22	4·55	4·22
5. Queensland	...	0·04	0·17	0·34	0·59	0·59	0·25	...	1·39
6. South Australia	0·07	0·14	0·20	0·30	0·36	0·29	0·06	4·15	1·94
7. Western Australia	...	0·01	0·02	0·02	0·04	0·04	0·02	5·42	5·30
All Colonies	0·13	0·39	0·60	0 86	1·20	1·07	0·34	5·60	3·36
Decennial Rate of Increase	...	0·26	0·21	0·26	0·34				

Upon the whole, we learn from this analysis that *in relation to area* there has been a greater absolute progress during the last decade than in any previous corresponding period. This, however, does not apply in all cases to individual Colonies. The greatest absolute advance made in each Colony respectively, during any one decade since 1850, is shown as follows :—

GREATEST Positive Increase in one Decade.

	Decade.	Increase.	
		No.	Per Square Mile, Persons.
Victoria	1850–60	461,685	5·25
New Zealand	1870–80	236,464	2·26
Tasmania	1880–90	30,528	1·16
New South Wales	1880–90	379,967	1·22
Queensland	1880–90	166,888	0·25
South Australia	1870–80	83,776	0·10
Western Australia	1880–90	19,607	0·02
ALL	1880–90	1,067,515	0·34

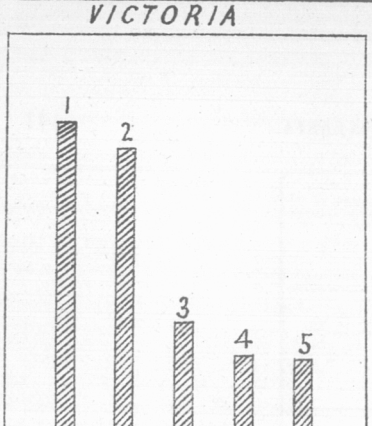
Relative to actual numbers, irrespective of area, the annual rates of increase during the last decade, and in the forty years ending 1890, are shown as follows, beginning with the highest—thus :—

TRUE Annual Rate of Increase.

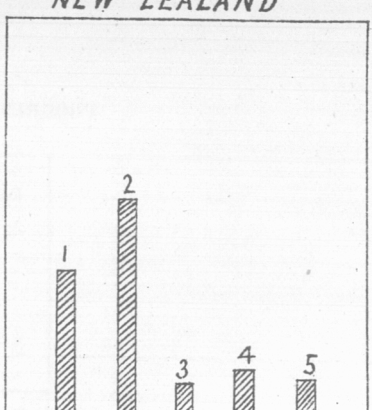
Last Decade.	Per Cent.	Forty years ending 1890.	Per Cent.
1. Western Australia	5·30	1. New Zealand	7·47
2. New Sonth Wales	4·22	2. Victoria	6·96
3. All Colonies	3·36	3. All Colonies	5·60
4. Victoria	2·80	4. Western Australia	5·42
5. New Zealand	2·58	5. New South Wales	4·55
6. Tasmania	2·39	6. South Australia	4·15
7. South Australia	1·94	7. Tasmania	1·82
8. Queensland	1·39	(Queensland first settled in 1859).	

COMPARATIVE DEVELOPMENT OF VARIOUS COLONIES

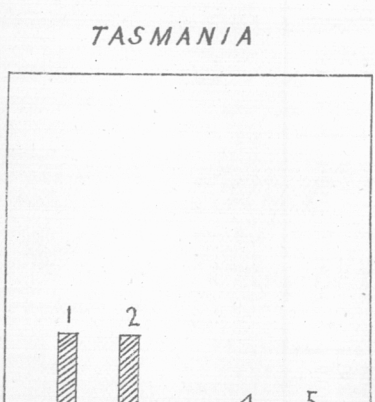
VICTORIA



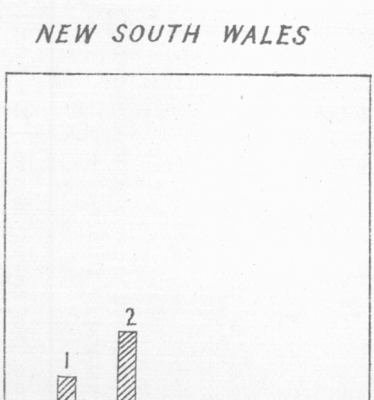
NEW ZEALAND



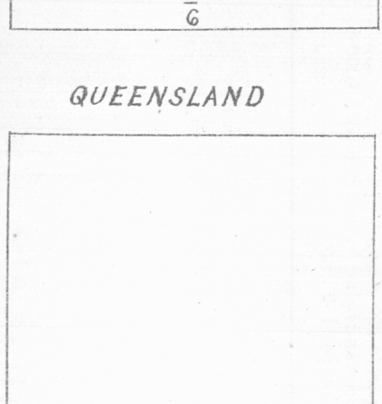
TASMANIA



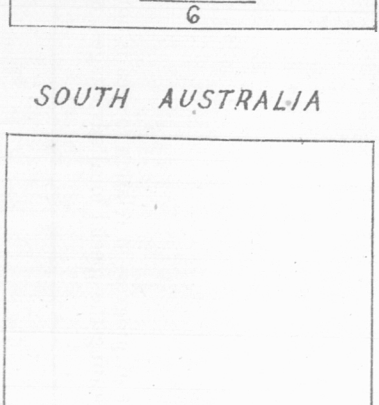
NEW SOUTH WALES



QUEENSLAND



SOUTH AUSTRALIA



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1 Population per 100 square miles
2 Exports domestic ditto
3 Private wealth per 10,000 ditto
4 Railways, miles open and being constructed per 10,000 sq. miles
5 Acres in cultivation per 100 sq. m.
6 Relative size of each Colony

R. M. Johnston.

That this rate of progress in relation to area is not merely confined to population is shown by the following comparison, the items selected indicating the special local advantages, whether natural or artificial :—

	Victoria, 1890.	New Zealand, 1890.	Tasmania, 1890.	N. S. Wales, 1890.	Queensland, 1890.	S. Australia, 1890.	W. Australia, 1890.
1. Relative size of each Colony	3½	4	1	12	25½	34	40
2. Population per 100 square miles... ..... No.	1282	599	554	361	59	36	4
3. Export of Domestic Products ditto ..... £	117·11	90·24	54·58	55·46	12·58	4·88	·62
4. Private Wealth per 10,000 ditto..... £	463	144	154	133	18	11	1
5. Railways, miles open and being constructed per 10,000 do. No.	330	203	180	78	41	19	7
6. Acres in cultivation per 100 ditto..... No.	3019	1576	1973	482	34	293	7

Relative progress can alone be measured by relation to area in countries where raw natural products form the principal objects of industry. This particularly applies to wool and other pastoral products when value of exports are considered, as comparatively little of the produce is consumed locally. Moreover, great preponderance of wool in the value of domestic products is an indication rather of a vast sparsely populated territory than of a high stage of development, and therefore to measure such products by population, which in such cases must be relatively small, would be utterly misleading, as it would artificially place the Colony at a disadvantage which supported the greatest number of persons per square mile. It scarcely requires an argument to demonstrate that the Colony which supports in comfort the greatest number of persons per square mile is in itself the best proof that that Colony has in the best sense attained the highest stage of development in a material point of view.

If these considerations be admitted, it follows that the Colonies in Australasia which at present have attained the highest stage of development stand in the following order, beginning with the highest :—

1. Victoria.
2. New Zealand.
3. Tasmania.
4. New South Wales.
5. Queensland.
6. South Australia.
7. Western Australia.

The diagram accompanying this Report more clearly depicts the facts supporting these conclusions.

Rate of Progress.

The rapidity with which the population of young English colonies increases—for example, doubling in the space of 12·72 years—is marvellous when contrasted with the most vigorous of old densely populated centres. During the period 1840–90 the United Kingdom only increased by 11 millions, or ·70 per cent. per year. This rate, if continuous, would take 99 years to double the existing population, that is if other obstacles to growth did not arise.

The relatively more rapid progress of young countries is mainly due to the (1) large proportional influx of immigrants (relative to population) from older centres, and (2) to the favourable hygienic conditions of a thinly populated country, tending to prolong the average life, and to produce a much lower death-rate than is found common in unfavourably crowded centres of population.

The proportion of yearly increase due to these separate causes in the Australasian Colonies is contrasted with the average yearly increase in the United Kingdom ; thus :—

AVERAGE of last 30 years.

	Australasian Colonies.	United Kingdom.
Per cent. of increase per year due to natural causes, *i.e.*, excess of births over deaths...	2·36	...
Percentage increase per year due to immigration	1·49	...
Total percentage increase from both causes	3·85	0·89
Time in which the respective rates, if continuous, would double the population	18·35	78·22

Thus, it appears that in Australasia the proportion of the yearly increase due to immigration alone is relatively much larger than the yearly increase in the United Kingdom from all causes.

Fallacies of Estimates based on current high Rate of Increase.

It is a common fallacy, however, to assume that the present relative rate of increase in Australasia will be maintained over a very long period of years; for as population grows larger the immigration element will diminish proportionally, unless we assume, what is very improbable, that immigration will continue to increase at the same rate as the total population.

The death-rate, too, now so favourable, will gradually increase to the normal rate of European countries as the people approach a similar density of population; for it is now too well established that a more or less high death-rate is always a concomitant of densely populated centres.

Progress of United States, 1790 to 1890.

These conclusions are borne out by statistics relating to the growth of population in the United States of America during the last 100 years. In 1790 the population of that country was 3,929,214, and increased to 62,000,000 persons at the close of 1890, representing a mean yearly rate of increase of 2·8 per cent., due to natural increase and to immigration. The following table shows the diminishing curve of rate of increase towards the close of this period:—

PROGRESS of United States, 1790 to 1890.

Year.	Population.	Mean Rate of Increase per year.
		Per cent.
1790	3,929,214	...
1800	5,308,483	3·05
1810	7,239,881	3·12
1820	9,633,822	2·90
1830	12,866,020	2·95
1840	17,069,453	2·85
1850	23,191,876	3·11
1860	31,443,321	3·10
1870	38,558,371	2·07
1880	50,155,783	2·73
1890	62,000,000	2·07
Mean rate per year for	the whole period	2·80

It is more probable, therefore, that the progress of population in Australasia during the next hundred years will follow the curve exhibited in the United States progress between the years 1790 and 1890, rather than that the rate of the last 30 years shall continue to be maintained for such a long period. If the latter were possible, it would produce a population of 165,770,000 persons in the year 1990; but if the former and more probable curve of progress be maintained, the population in the same year would only reach 60,000,000, *i.e.*, a population nearly equal to that of the United States at the present time.

These conclusions are further corroborated by the figures in the following table, which show, as might be expected, a rapid and gradual diminution in the abnormally high annual rates of increase which marked the earlier decades in Australasia, commencing with the year 1820:—

PROGRESS of Population in Australasia, 1820 to 1890.

Year.	Population.	Annual Rate of Increase.		
		Since last Decade.	Since 1820.	Since 1850.
	(000's omitted.)	Per Cent.	Per Cent.	Per Cent.
1820.....	34	...	...	...
1830.....	71	7·64	7·64	...
1840.....	210	11·45	9·53	...
1850.....	428	7·38	8·81	...
1860.....	1221	11·05	9·37	11·05
1870.....	1899	4·52	8·38	7·74
1880.....	2724	3·68	7·58	6·36
1890.....	3792	3·36	6·97	5·60

Special Causes affecting the future Progress of Australasia.

Perhaps, however, the higher stages of development in the United States in the coming century may specially favour the progress of the Australasian group.

An estimate now prepared* based upon the experience of twenty-one great countries—embracing a population of 409 millions, possessing an area of 9492 million acres—demonstrates that the present civilisation requires the cultivation of 2·25 acres per head for food and raw products. International exchange disguises this fact as regards the experience of any one country. The present area of the United States is reckoned at about 2291 million acres. Allowing a need of the estimated requirement of cultivated land—viz. 2·25 acres per head—for supplying the whole round of wants of each person, and that three-fourths of her total area are capable of cultivation; then if her population increases only at the rate of 2 per cent. per year, the population would be so vast (763·7 millions) that the produce of every available acre 126 years hence would be wholly required for *home consumption.*

The checks to population, however, may be expected to increase, and this limit may be placed further back; but it is clear that the need to withdraw more and more her present enormous export of raw products from external markets will greatly operate in enhancing the value of the virgin soils of Australasia, and so give an additional spur to her development.

General Progress.

During the last Forty years Population, Public Revenue, Private Wealth, Land Cultivation, External Trade, and other matters have made wonderful progress.

Thus, since 1850—

Population has increased by 3,264,000, or 790 per cent.
Revenue per annum has increased by £28,356,000, or 2985 per cent.
External Trade per annum has increased to £124,321,000, or 1546 per cent.
Capital invested in Railways has increased to £107,713,000.
Wool Exports per annum have increased by £21,246,000, or 753 per cent.
Sheep have increased by 97,715,000, or 597 per cent.

Since 1860—

Public Debt has increased by £173,749,000, or 1787 per cent.
Private Wealth has increased by £922,000,000, or 542 per cent.
Private Wealth, less Public Debt, has increased by £818,251,000, or 472 per cent.

* See page 374.

The annual rates of increase in the growth of Population, Public Revenue, and Public Debt during the last decade have been as follows:—

Population	3·36 per cent.
Revenue	5·53 „
Public Debt	7·39 „

Public Debt and Railways.

A great deal of misconception exists at the present time in regard to the higher ratio of increase in the Public Debt of Australasia during the last decade, as compared with her Population and Revenue ratios, and it is evident that this misconception has arisen from a failure on the part of English financiers to realise that Australasian debt, or at least 90 per cent. of it, is represented by *Capital Investments* in Railways, Bridges, Roads, Harbours, &c. In no country in the world can it be shown that such necessary investments—whether undertaken by General or Local Governments or by private Corporations—have been made according to the ratios of increase in either Population or Revenue during the same period. Nor when we examine the subject further can we discover any reason, in the earlier stages of railway development, why there should be the slightest correspondence between them. The higher ratios of railway dvelopment in the early stages are determined rather by the relative smallness of the accidental starting-point with which comparison is made, and affords no test whatever of the actual capital invested, nor of its lack or sufficicncy, so far as the immediate welfare of the community is concerned. The truth of these observations is significantly made manifest by reference to the progress of railway investments in the United Kingdom and Germany at two different periods; the one marking the absolute and relative increases at the earlier stages of their railway development, the other at a later period (the last decade) when the network of their railway systems may be supposed to have somewhat approached completion. The periods taken for this purpose are the decades ending 1850 and 1890 respectively; thus:—

		Increase since close of previous Decade.	
United Kingdom.			
Year 1850—	Millions.	Millions.	Per cent.
Population ..... No.	27·5	0·7	2·6
Revenue ..... £	61·0	— 3·0	— 4·7
Capital invested in Railways ..... £	240·0	212·0	757·2
Year 1890—			
Population ..... No.	37·8	2·9	8·3
Revenue ..... £	89·0	79·0	12·7
Capital invested in Railways ..... £	897·0	169·0	23·2
Germany.			
Year 1850—			
Population ..... No.	35·9	3·1	9·5
Revenue ..... £	21·0	5·0	31·2
Capital invested in Railways ..... £	61·0	55·0	916·7
Year 1890—			
Population ..... No.	49·4	4·2	9·3
Revenue ..... £	110·0	37·0	50·7
Capital invested in Railways ..... No.	495·0	64·0	14·9

Nothing could be more conclusive in demonstrating the fallacies underlying all conclusions which are based upon any supposed correspondence between the ratios of increase in Population, Revenue, and Railway Investments, than the illustrations given above. Thus, *e.g.*, the railway investments in Germany in the decade ending 1850—though actually £9,000,000 under the amount invested during the decade ending 1890—have a ratio of increase of 916·7 per cent. as compared with the previous decade; while the corresponding ratio of the larger amount invested in the decade ending 1890 represents only 14·9 per cent. increase; and while Railway Investments in the earlier decade represent a ratio of increase of 916·7 per cent., the Population and Revenue ratios are 9·5 and 31·2 respectively. The absolutely larger Railway Investments of decade 1880–90 only represent a ratio of 14·9 per cent. increase, while the Population and Revenue ratios for the same period are 9·3 and 50·7 per cent. respectively. The figures for the same period in respect of the United Kingdom are equally conclusive in showing the fallacies of judgments formed in this way. As the greater part of the objections to further borrowing in connection with Australasian railway development are based upon such fallacies, it may be of advantage to study the progress of Railway Investments in various countries at various periods since the year 1840, as in the following table :—

RATIOS of Increase in Population, Revenue, and Railway Investments in various countries during the Five Decades ending in 1890.

	Population, millions.							Public Revenue, millions sterling.							Railways—Capital invested. Millions sterling.							
	1840.	1850.	1860.	1870	1880.	1890.		1840.	1850.	1860.	1870.	1880.	1888-90		1840.	1850.	1860.	1870.	1880.	1888-90	Average per year, 1840-90.	
Europe	233·7	255·0	283·9	293·0	325·0	350·0	..	189	229	293	384	515	644	..	52	404	797	1476	2411	3055	60·0	
United Kingdom	26·8	27·5	29·1	31·6	34·9	37·8	..	64	61	68	71	79	89	..	28	240	348	530	728	897	17·4	
France	34·2	35·8	36·7	37·0	37·6	38·1	..	40	50	60	78	105	149	..	11	57	171	274	392	570	11·2	
Germany	32·8	35·9	38·1	41·1	45·2	49·4	..	16	21	34	40	73	110	..	6	61	116	204	431	495	9·8	
United States	17·1	23·2	31·4	38·6	50·2	62·6	..	5	6	12	37	62	84	..	19	60	239	497	1171	1949	38·6	
Australasia	·21	·43	1·22	1·90	2·72	3·79	..	·71	·95	5·80	8·81	17·07	29·31	..	..	..	2	12	51	108	2·7	

Percentage Rate of Increase since termination of previous Decade.*

	*	*	*	*	*	*	Mean Annual Rate since 1840.	*	*	*	*	*	*	Mean Annual Rate since 1840.	*	*	*	*	*	*	Mean Annual Rate since 1840.	Mean Actual Rate during first 30 years.
Europe	..	9·1	11·3	3·2	10·9	7·7	·81	..	21·2	27·9	31·1	34·1	25·1	2·49	..	677·0	97·2	85·2	63·3	26·7	8·49	11·80
United Kingdom	..	2·6	5·8	8·6	10·4	8·3	·70	..	—4·7	11·15	4·4	11·3	12·7	·66	..	757·2	45·0	52·3	37·4	23·2	7·18	10·23
France	..	4·7	2·5	0·8	1·6	1·3	·22	..	25·0	20·0	30·0	34·6	41·9	2·66	..	418·2	200·0	60·2	43·1	45·4	8·22	11·31
Germany	..	9·5	6·1	7·8	10·0	9·3	·82	..	31·2	61·9	17·6	82·5	50·7	3·93	..	916·7	90·2	75·9	111·3	14·9	9·63	13·16
United States	..	35·7	35·3	22·9	30·0	24·7	2·63	..	20·0	100·0	208·3	67·6	35·5	1·04	..	115·8	298·3	107·9	135·6	66·4	9·71	11·50
Australasia	..	104·7	183·7	55·7	43·2	39·2	5·96	..	33·8	510·5	51·9	93·8	71·7	7·72	..	..	..	500·0	925	111·8	..	14·22

The foregoing table clearly demonstrates that of necessity the ratio of increase in respect of Railway Investments in all countries greatly exceeds the ratios of increase of either Population or Revenue, and therefore the rate of borrowing in Australasia for such purposes cannot be measured by any such references. The lack of correspondence between such ratios at different stages in various countries are summarised as follows :—

COMPARATIVE Differences of the Ratios of Increase as regards the Population, Revenue, and Railway Investments of various Countries during the Five Decades ending in Year 1890.

RATES OF INCREASE.

	POPULATION.			REVENUE.			CAPITAL INVESTED IN RAILWAYS.		
	In Decades.		Mean Annual Rate since 1840.	In Decades.		Mean Annual Rate since 1840.	In Decades.		Mean Annual Rate first 30 Years.
	Max.	Min.		Max.	Min.		Max.	Min.	
	per cent.	per cent.	per cent.	per cent	per cent.	per cent.	per cent.	per cent.	per cent.
Europe	11·3	3·2	·81	34·1	21·2	2·49	677·0	26·7	11·80
United Kingdom...	10·4	2·6	·70	12·7	—4·7	·66	757·2	23·2	10·23
France	4·7	0·8	·22	41·9	20·0	2·66	418·2	43·1	11·31
Germany	10·0	6·1	·82	82·5	17·6	3·93	916·7	14·9	13·16
United States	35·7	22·9	2·63	208·3	20·0	1·04	298·3	66·4	11·50
Australasia	183·7	39·2	5·96	510·5	33·8	7·72	500·0	111·8	14·22

It is curious to observe, that of all the illustrations given the United Kingdom shows the highest ratio of Railway increase as contrasted with her Population and Revenue ratios.

When we consider all these matters, the mistaken advice given in a recent press telegram from London cannot be too strongly deprecated. This telegram advises as follows :—

"In financial circles the hope is generally expressed that the Colonies would make definite efforts to defer their borrowing intentions. Financiers advise the creation of Sinking Funds for the purpose of discharging matured loans." A very able comment on the mistaken nature of this advice has recently been published by the Commissioners of Audit for South Australia, from which the following extract is taken :—

"It must be borne in mind, that not only in this Colony (South Australia), but throughout Australia, the greater part of the Public Loans are for the construction of Railways, and the Local Government practically takes the position of the shareholders. The railway capital in the United Kingdom at the end of 1890 consisted of :—

	£
Ordinary Share Capital	332,070,153
Preference ditto	332,889,003
Loans.....	232,512,870
	£897,472,026

And this was increasing at the rate of about £16,000,000 per annum. Now what would be thought of any financiers, who not only tried to put the brake upon this increased expenditure, but suggested the necessity of repaying

the Loans and Preference Stock? And yet this telegram in its application to Australia goes even further than this, for it would not only stop the expenditure of new capital for development, but in its advice about the creation of Sinking Funds practically ignores the permanent value of the railways already constructed. Such a policy would limit the further development of a continent almost as large as Europe to the resources of the three million colonists already settled there, instead of affording a field for the permanent, profitable, and secure investment of capital. If the British railways require annually so large an addition to their capital (a considerable proportion of which additions are in the form of loans), surely there are stronger reasons why the development of this continent should require a constant increase in capital. The rapid growth in population, production, trade, and commerce, and the extension of settlement, demand that the public works and facilities should keep pace with this growth. Australia must continue to pursue her onward course, and to do so additional capital can be employed with safety both to the borrower and the lender. To stop progress at the present point would be folly." The same able authorities go on to say that—"The only justification for the suggestions in the telegram would be that the loan moneys are injudiciously expended, and that the securities are insufficient, or that the revenues will not pay interest." And in answer to this they state that—"The manner in which the public funds have been hitherto protected, and the capital and resources of the Colony increased, should be a guarantee that the residents will not permit their personal interests to be jeopardised by extravagance or unnecessary liabilities;" and "that the people have a sufficient stake in permanent value of securities and the future welfare of the Colony to lead them to look on both sides of the obligation."

Summary of General Statistics for each Colony of Australasia, Years 1880 and 1886-90.

Tasmania .....
Victoria .....
New South Wales .....
Queensland .....
South Australia .....
Western Australia .....
New Zealand .....
Aggregate of Seven Colonies...
} Years 1880 and 1886-90.

Comparative Table showing the General Statistics for each Colony for the year 1890.

Tasmania.

Statistical Summary for the Year 1880 *and Years* 1886–1890.

Area—26,215 square miles.

	1880.	1886.	1887.	1888.	1889.	1890.
Population on 31st December	114,762	131,616	135,988	138,346	142,177	145,290
Ditto, mean for year	113,615	130,442	133,802	137,167	140,262	143,734
Revenue—						
From Customs £	217,717	276,265	274,065	297,912	307,352	329,068
Other Taxes £	82,524	95,279	101,436	107,895	115,291	125,364
Total Revenue £	442,158	568,924	594,976	640,068	678,909	758,100
General Expenditure—						
Interest on Loans £	97,602	155,844	182,571	184,613	209,737	223,652
Total Expenditure £	423,745	584,756	668,759	709,486	681,674	722,746
Loans Expenditure—						
On Railways £	...	266,014	197,696	181,102	173,548	1,394,483
Other Public Works £	...	218,275	181,890	231,334	193,491	233,798
Total, current year £	...	484,289	379,586	412,436	367,039	1,628,281
Public Debt on 31st December... £	1,943,700	4,026,720	4,109,370	4,499,470	5,019,050	6,432,800
Imports £	1,369,223	1,756,567	1,596,817	1,610,664	1,611,035	1,897,512
Exports—						
Wool £	542,244	310,934	415,425	306,930	283,237	419,173
Gold £	201,655	104,402	140,584	127,562	123,486	87,085
Silver Ore £	...	...	...	...	...	16,872
Tin £	341,736	363,364	407,857	426,326	345,407	296,761
Total Home Products £	1,481,330	1,312,416	1,425,457	1,303,908	1,442,605	1,430,806
Total Exports £	1,511,931	1,331,540	1,449,371	1,333,865	1,459,857	1,486,992
Shipping—Total Tonnage	413,303	692,429	735,299	776,278	912,246	951,247
Railways—						
Miles open	167	303	318	328	375	399
Train Miles	400,945	587,917	694,567	777,035	815,986	880,447
Cost of Construction £	1,541,272	2,213,781	2,318,482	2,506,794	2,925,362	3,088,882
Receipts £	73,740	131,935	140,224	153,471	174,518	186,934
Expenditure £	68,487	114,706	126,250	140,178	152,172	167,340
Telegraphs—						
Miles Poles	745[a]	1772	1816	1894	1980	2004
Offices	64	144	156	165	178	186
Cost of Construction £	...	154,982	155,711	157,130	171,887	161,793
Messages	108,730	209,307	233,811	271,769	280,559	353,548
Receipts £	5008[b]	19,793	20,715	22,621	26,414	27,615
Expenditure £	6465[b]	20,337	20,757	21,202	21,809	24,340
Post Office—						
Offices	201	251	258	278	293	315
Letters and Post Cards	2,682,329	4,193,873	4,549,899	4,716,244	4,814,239	5,172,824
Newspapers and Packets	2,345,700	4,300,501	4,464,242	4,819,315	6,076,363	5,904,738
Receipts £	19,484	32,510	33,567	35,914	39,536	41,759
Working Expenses £	27,154	38,401	42,360	41,770	44,283	46,137
Banks—Deposits (Ordinary) £	2,122,091	4,127,946	3,832,137	3,564,717	3,958,848	4,158,708
(Savings) £	310,081	429,090	448,280	469,928	497,492	521,250
Property—Assessed Ann. Value... £	708,348	848,273	869,074	891,943	1,069,539	1,080,139
Agriculture—						
Wheat—Acres	50,022	35,322	40,498	40,657	49,055	39,452
Bushels	750,040	632,573	675,069	819,497	756,639	642,980
Oats—Acres	19,853	21,607	21,169	33,834	40,169	20,740
Bushels	439,446	560,622	385,195	946,354	1,148,935	519,395
Barley—Acres	8297	2749	3766	4670	4446	4376
Bushels	169,156	61,585	52,240	109,979	105,574	99,842
Potatoes—Acres	10,421	16,084	16,394	13,653	17,015	20,133
Tons	32,548	75,773	42,526	66,721	72,275	73,158
Hay—Acres	31,615	47,269	44,562	52,521	50,913	45,381
Tons	35,883	50,158	50,901	58,290	73,859	52,021
Land in Crop—Acres	140,788	152,388	150,140	172,189	189,959	157,376
Land under Cultivation—Acres..	373,299	446,391	457,436	481,533	488,354	517,174
Live Stock—						
Horses	25,267	29,684	29,528	29,238	29,778	31,165
Cattle	127,187	148,665	147,092	142,019	150,004	162,440
Sheep	1,796,715	1,608,946	1,547,242	1,430,065	1,551,429	1,619,256
Pigs	48,029	73,118	52,408	43,227	58 632	81,716

[a] Does not include Railway Telegraph, Main Line. [b] Does not include the annual subsidy of £4200.

Tasmania.

Statistical Summary for the Year 1880 *and Years* 1886–1890.

(Relative and Proportional)

	1880.	1886.	1887.	1888.	1889.	1890.
Population—						
Persons per square mile	4·38	5·02	5·19	5·28	5·42	5·54
Birth Rate	32·91	35·47	35·51	34·81	33·92	33·49
Death Rate	16·12	15·15	16·20	14·84	14·96	14·74
Marriage Rate	7·39	7·56	7·04	6·93	6·89	6·64
Finance—						
Revenue per head £	3 17 10	4 7 3	4 8 10	4 13 4	4 10 10	5 5 6
Taxation ditto £	2 12 10	2 17 0	2 16 1	2 19 2	3 0 3	3 3 3
Ditto per cent. to Revenue	67·90	65·31	63·11	63·40	62·25	59·94
General Expenditure per head £	3 13 1	4 9 8	5 0 0	5 3 5	4 17 2	5 0 7
Public Debt per head, 31 Dec. £	16 18 9	30 11 11	30 4 4	32 10 6	35 6 0	44 5 6
Interchange—						
Imports per head £	12 1 0	13 9 4	11 18 8	11 14 10	11 9 9	13 4 0
Exports (Home Products) per head £	13 0 9	10 1 3	10 13 1	9 10 1	10 5 8	9 19 1
Total Exports per head £	13 6 2	10 4 2	10 16 8	9 14 6	10 8 2	10 6 11
Home Products per sq. mile £	56·51	50·06	54·37	49·74	55·03	54·58
Railways—						
Miles open & being constructed, per 100,000 persons	146·90	338·08	329·59	321·51	337·23	329·08
Ditto, per 10,000 sq. miles	63·70	168·22	168·22	168·41	180·43	180·43
Population, per mile open and constructed	680	296	303	311	297	304
Cost of construction per mile open £	9229·17	7306·21	7290·82	7654·33	7811·38	7746·41
Receipts per mile worked £	441·56	478·00	439·56	475·14	504·39	468·50
Ditto per train mile *s. d.*	3 8·14	4 5·86	4 0·46	3 11·40	4 3·33	4 2·95
Profit per cent. to cost of construction	0·34	0·77	0·60	0·50	0·76	0·63
Working Expenses per mile worked £	410·10	415·60	395·77	433·99	439·80	419·40
Ditto per train mile *s. d.*	3 4·99	3 10·82	3 7·62	3 7·28	3 8·75	3 9·61
Ditto per cent. to Receipts	92·88	86·94	90·09	91·07	87·19	89·52
Service Train Miles per mile worked	2400·87	2130·00	2177·32	2405·99	2358·34	2206·63
Ditto per head	3·53	4·51	5·19	5·67	5·82	6·12
Ditto per 100 square miles	1529	2242	2649	2964	3112	3358
Post Office—						
Letters, Newspapers, &c. per head mean population	44·26	65·12	67·37	69·52	77·64	77·07
Offices per 100 square miles	·77	·96	·99	1·06	1·12	1·20
Telegraphs—						
Miles poles per 100 square miles	2·84	6·76	6·93	7·23	7·55	7·64
Offices, ditto	·24	·55	·56	·63	·68	·71
Agriculture—						
Acres under cultivation per head	3·29	3·42	3·42	3·51	3·48	3·60
Wheat, bushels per acre	14·99	17·91	16·42	20·15	15·43	16·29
Oats, ditto	22·13	25·94	18·19	27·97	23·75	25·04
Barley, ditto	20·38	22·40	13·87	23·55	28·60	22·86
Potatoes, tons per acre	3·12	4·71	2·59	4·88	4·25	3·63
Hay, ditto	1·13	1·06	1·14	1·11	1·45	1·14
Wheat, bushels per head	6·60	4·85	5·05	5·97	5·39	4·47
Oats, ditto	3·87	4·30	2·88	6·90	8·19	3·61
Barley, ditto	1·49	0·47	0·39	0·80	0·75	0·69
Live Stock—						
Horses per square mile	0·96	1·13	1·13	1·12	1·14	1·19
Cattle ditto	4·85	5·71	5·61	5·41	5·72	6·20
Sheep ditto	68·54	61·37	59·02	54·55	59·18	61·77

Victoria.

Statistical Summary for the Year 1880 *and Years* 1886–1890.

Area—87,884 square miles.

	1880.	1886.	1887.	1888.	1889.	1890.
Population on 31st December..... Estimated No.	860,067	1,003,043	1,036,119	1,090,869	1,118,028	1,133,266
Ditto mean for year...	850,343	987,094	1,019,700	1,062,050	1,104,300	1,118,496
Revenue—						
From Customs..... £	1,377,782	2,004,460	2,132,361	2,353,050	2,879,830	2,658,010
Other Taxes..... £	313,141	630,100	607,274	717,953	869,840	972,804
Total Revenue..... £	4,621,282	6,481,021	6,733,826	7,609,598	8,675,990	8,519,159
General Expenditure—						
Interest on Loans..... £	1,004,435	1,282,010	1,270,809	1,385,121	1,459,242	1,548,145
Total Expenditure .... £	4,875,029	6,513,540	6,561,251	7,287,151	7,919,902	‡9,645,737
Loans Expenditure—						
On Railways ..... £	1,240,668	1,401,511	1,521,817	1,742,149	3,083,211	2,933,087
Other Public Works, &c. £	267,110	330,323	566,143	647,795	654,087	820,918
Total Current Year.... £	1,507,778	1,731,834	2,087,960	2,389,944	3,737,298	3,754,005
Public Debt on 31st Dec. £	22,060,749	30,114,203	33,127,382	34,627,382	37,367,027	41,377,693
Imports ..... £	14,556,894	18,550,575	19,022,151	23,972,134	24,402,760	22,954,015
Exports—						
Wool..... £	6,417,453	4,999,662	5,073,491	5,170,930	5,928,847	5,933,603
Gold ..... £	3,887,534	†635,427	†1,254,546	†6,040,756	†2,280,326	†2,739,503
Tin ..... £	849	2554	3584	4928	368	272
Total Home Products.. £	11,220,467	9,054,687	8,592,970	10,156,633	9,776,670	10,291,821
Total Exports ..... £	15,954,559	11,795,321	11,351,145	13,853,763	12,734,734	13,266,222
Shipping—Total Tonnage ..	2,179,899	3,735,387	3,858,243	4,307,883	4,599,178	4,363,341
Railways—						
Miles Open	1199	1743	1880	2018	‡2199	‖2688
Train Miles	4,380,802	7,256,703	7,991,378	9,082,312	10,680,743	‡11,773,152
Cost Construction ..... £	18,041,295	23,903,895	25,297,534	27,268,258	29,048,670	‡31,800,515
Receipts..... £	1,492,917	2,329,126	2,453,078	2,756,049	3,110,140	‡3,131,866
Expenditure..... £	814,075	1,310,538	1,427,116	1,753,019	1,945,837	‡2,132,158
Telegraphs—						
Miles, poles	3215	4094	4115	4194	3967	§ 8013
Offices	284	420	515	601	656	748
Cost of Construction... £	*	*	*	*	*	*
Messages	1,160,912	2,023,858	2,260,480	2,743,938	2,885,919	*
Receipts ..... £	61,479	95,499	102,755	125,342	159,093	175,777
Post Office—						
Offices	1100	1429	1492	1544	1600	1671
Letters and Post Cards...	24,195,149	38,392,414	41,287,972	47,700,776	48,097,268	62,526,448
Newspapers and Packets .	14,199,020	24,309,015	26,539,670	30,792,238	27,473,020	30,413,921
Receipts ..... £	261,872	205,339	205,904	*	370,000	330,263
Working Expenses .... £	355,820	514,400	553,172	562,863	582,910	626,984
Bank Deposits—Ordinary £	17,972,703	31,239,472	35,215,547	37,570,838	38,768,936	40,292,065
Savings . £	1,661,409	3,589,916	3,696,699	4,669,541	4,971,933	5,405,644
Property—Assessed Annual Value ..... £	7,117,946	9,621,135	10,153,771	11,913,473	12,931,526	13,265,543
Agriculture—						
Wheat—Acres	977,285	1,052,685	1,232,943	1,217,191	1,178,735	1,145,163
Bushels.....	9,727,369	12,100,036	13,328,765	8,647,709	11,495,720	12,751,295
Oats—Acres	134,089	185,765	199,036	197,518	236,496	221,048
Bushels	2,362,425	4,256,079	4,562,530	2,803,800	5,644,867	4,919,325
Barley—Acres.....	68,630	37,031	40,985	83,483	90,724	87,751
Bushels.....	1,068,830	827,852	956,476	1,131,427	1,831,132	1,571,599
Potatoes—Acres	45,951	49,974	48,263	43,074	47,139	53,818
Tons	129,262	170,661	198,225	131,149	157,104	204,155
Hay—Acres	249,656	445,150	441,812	411,332	451,546	413,043
Tons	300,581	483,049	624,122	308,117	666,385	567,746
Land under Tillage–Acres	1,997,943	2,417,582	2,576,405	2,564,742	2,627,262	2,652,748
Live Stock—						
Horses	275,516	308,553	315,000	323,115	329,335	436,459
Cattle	1,286,267	1,303,265	1,333,873	1,370,660	1,394,209	1,782,978
Sheep	10,360,285	10,700,403	10,623,985	10,818,575	10,882,231	12,736,143
Pigs	241,936	240,957	243,461	245,818	249,673	282,457

* Information not available. † Including specie. ‡ For year ending 30th June.
§ Including Railway Telegraphs. ‖ For year ending 31st December.

Victoria.

Statistical Summary for Year 1880 *and Years* 1886–90.

(Relative and Proportional.)

	1880.	1886.	1887.	1888.	1889.	1890.
Population—						
Persons per square mile	9·79	11·41	11·79	12·41	12·72	12·90
Birth Rate	30·76	31·22	32·40	32·49	32·92	33·59
Death Rate	13·70	15·14	15·70	15·34	17·56	16·10
Marriage Rate	6·22	7·83	7·62	8·42	8·33	8·21
Finance—						
Revenue per head £	5 8 8	6 11 4	6 12 1	7 3 3	7 17 2	7 8 1
Taxation ditto £	1 19 9	2 13 5	2 13 9	2 17 10	3 7 10	3 3 1
Per cent. to Revenue	36·59	40·65	40·68	40·37	43·22	42·64
General Expenditure per head £	5 14 8	6 12 0	6 8 8	6 17 3	7 3 5	8 7 8
Public Debt per head £	25 13 0	30 0 5	31 19 5	31 14 10	33 8 5	36 10 2
Interchange—						
Imports per head £	17 2 4	18 15 5	18 13 1	22 11 5	22 1 11	20 10 6
Exports, Home Products, per head £	13 3 11	9 3 6	8 6 9	9 15 1	8 17 0	9 4 0
Total Exports per head £	18 15 3	11 19 0	11 2 7	13 0 11	11 10 8	11 17 2
Home Products per sq. mile £	127·67	103·03	96·76	157·63	111·25	117·11
Railways—						
Miles open & being constructed per 100,000 persons	143	209	282	254	262	256[b]
Ditto per 10,000 square miles	138	235	328	307	329[a]	330[b]
Population per mile open and being constructed	701	477	360	393	386[a]	391[b]
Cost of construction per mile open £	15,047	13,636	12,980	13,512	13,210	12,869[b]
Receipts, ditto £	1245	1329	1259	1366	1414[b]	1267[b]
Ditto per train mile.. *s. d.*	6 9·79	6 5·03	6 1·67	6 0·80	5 9·89[b]	5 3·84[b]
Profit per cent. to cost of construction	3·76	4·26	4·06	3·68	4·01	3·14[b]
Working Expenses per mile open £	678·96	747·60	732·23	868·69	885·07[b]	862·87[b]
Ditto, per train mile.. *s. d.*	3 8·64	3 7·34	3 6·86	3 10·32	3 7·72[b]	3 7·46[b]
Ditto, per cent. Receipts	54·53	56·26	58·18	63·61	62·56	68·07
Service Train Miles, per mile open	3654	4139	4100	4500	4858	4764
Ditto, per head	5·15	7·35	7·84	8·55	9·67	10·62
Ditto, per 100 square miles	4985	8257	9093	10,334	12,153	13,395
Post Office—						
Letters, Newspapers, &c., per head mean population	45·15	51·41	66·52	73·91	67·53	83·09
Offices per 100 square miles	1·25	1·62	1·69	1·75	1·82	1·90
Telegraphs—						
Miles Poles per 100 square miles	3·66	4·65	4·68	4·77	4·54	9·12
Offices, ditto	·32	·47	·58	·68	·75	·85
Agriculture—						
Acres under cultivation per head	2·35	2·45	2·53	2·42	2·38	2·37
Wheat, bushels per acre	9·95	11·49	10·81	7·10	9·75	11·13
Oats, ditto	17·62	22·91	22·93	14·20	23·87	22·25
Barley, ditto	15·58	22·36	23·34	13·55	20·18	17·91
Potatoes, tons, per acre	2·81	3·41	4·11	3·04	3·33	3·79
Hay, ditto	1·20	1·08	1·41	0·75	1·48	1·37
Wheat, bushels, per head	11·44	12·26	13·07	8·14	10·41	11·40
Oats, ditto	2·78	4·31	4·47	2·64	5·11	4·40
Barley, ditto	1·26	·84	·94	1·07	1·66	1·41
Live Stock—						
Horses per square mile	3·13	3·51	3·58	3·68	3·75	4·97
Cattle ditto	14·64	14·82	15·18	15·59	15·86	20·29
Sheep ditto	117·89	121·76	120·89	123·10	123·82	144·92

[a] Based on Railways, 31 December. [b] Based on Railways, financial year.

New South Wales.

Statistical Summary for the Year 1880 *and Years* 1886–90.

Area—310,700 Square Miles.

	1880.	1886.	1887.	1888.	1889.	1890.
Population on 31st December, estimated No.	741,893	1,001,966	1,042,919	1,085,740	1,122,200	1,121,857
Ditto mean for the year	725,676	979,490	1,022,442	1,064,329	1,103,970	1,101,839
Revenue—						
From Customs £	1,188,930	2,068,571	2,011,947	1,883,058	1,905,883	1,888,321
Other Taxes £	228,360	543,264	652,601	798,825	771,286	860,018
Total Revenue £	4,911,990	7,594,300	8,582,811	8,886,360	9,063,397	9,498,620
General Expenditure—						
Interest on Loan £	715,994	1,579,689	1,693,926	1,745,695	1,805,770	1,895,655
Total Expenditure £	5,502,760	9,078,869	9,098,460	9,072,835	9,250,271	9,549,885
Loans Expenditure—						
On Railways £	1,522,188	2,754,683	1,448,135	1,000,829	601,939	1,190,502
Other Public Works £	146,451	1,011,673	688,336	477,583	1,764,060	1,668,717
Total Expenditure £	1,668,619	3,766,356	2,136,471	2,478,406	2,365,999	2,859,219
Public Debt, 31st December £	14,903,919	41,034,249	40,995,350	44,100,149	46,646,449	48,425,333
Imports £	14,176,063	20,973,548	18,806,236	20,885,557	22,863,057	22,615,004
Exports—						
Wool £	8,040,625	7,201,976	9,200,071	9,358,515	10,785,070	9,232,672
Gold £	*839,376	*1,613,674	*1,312,492	*2,122,764	*3,202,614	*2,289,022
Tin £	354,252	720,059	824,105	807,688	447,396	436,728
Total Home Products £	12,679,782	12,884,200	15,472,361	17,289,487	17,423,311	17,232,725
Total Exports £	15,682,802	15,562,213	18,496,917	20,859,715	23,294,934	22,054,937
Shipping—Total Tonnage No.	2,432,779	4,258,604	4,322,758	4,771,419	5,321,179	4,761,872
Railways—						
Miles open No.	849	1935	2081	2206	2252	2263
Train miles No.	3,239,269	6,479,265	6,472,473	7,334,200	7,789,242	8,199,966
Cost Construction £	11,778,819	27,355,307	26,554,357	26,630,664	30,196,504	30,944,850
Receipts £	1,161,017	2,160,070	2,208,295	2,509,527	2,538,477	†2,633,086
Expenditure £	647,719	1,492,993	1,457,761	1,578,590	1,634,602	†1,665,835
Telegraphs—						
Miles (poles) No.	7955	10,816	10,721	10,690	10,732	11,231
Offices No.	289	425	434	460	485	628
Cost of Construction £	462,225	668,028	684,600	704,912	713,663	743,698
Messages No.	1,319,537	2,661,126	2,876,504	3,410,407	3,433,562	3,592,519
Receipts £	84,110	184,053	187,858	185,965	213,776	186,018
Post Office—						
Offices No.	927	1157	1167	1203	1261	1663
Letters and Post Cards No.	21,732,500	42,849,900	44,845,900	48,986,000	53,971,300	57,707,900
Newspapers and Packets No.	14,503,400	34,381,200	39,712,300	..	44,400,200	49,536,800
Receipts £	194,084	330,591	342,094	368,956	395,584	443,876
Working Expenses £	268,128	396,710	426,587	415,392	393,606	449,210
Banks Deposits—Ordinary £	17,893,651	27,330,239	29,032,530	30,819,549	32,755,605	35,460,118
Savings £	2,075,856	3,504,803	3,675,893	4,037,675	4,280,083	4,730,469
Property—Assessed Ann. Value £	..	..	..	..	7,009,575	8,336,634
Agriculture—						
Wheat—Acres	253,138	337,730	389,390	304,803	419,758	333,233
Bushels	3,717,355	5,868,844	4,695,849	1,450,503	6,570,335	3,649,216
Oats—Acres	17,923	23,947	19,393	7984	22,358	14,102
Bushels	356,121	600,892	394,762	109,931	543,330	256,659
Barley—Acres	8056	6079	4402	3318	5440	4937
Bushels	163,395	132,949	84,533	36,760	113,109	81,383
Potatoes—Acres	19,095	17,322	20,915	15,419	17,551	19,406
Tons	52,112	45,803	61,455	36,839	50,096	52,791
Hay—Acres	131,153	223,470	170,324	209,531	212,106	175,242
Tons	174,194	349,888	230,597	134,911	366,229	213,034
Land in Crops—Acres	710,337	977,664	1,048,305	999,298	1,164,475	1,498,635
Live Stock—						
Horses	395,984	361,663	390,609	411,368	430,777	444,163
Cattle	2,580,040	1,367,844	1,575,487	1,622,907	1,741,592	1,909,090
Sheep	35,398,121	39,169,304	46,965,152	46,503,469	50,106,768	55,986,431
Pigs	308,205	209,576	264,111	248,583	238,535	284,453

* Including Specie. † State Lines only.

New South Wales.

Statistical Summary for Year 1880 *and Years* 1886–90.

(Relative and Proportional.)

	1880.	1886.	1887.	1888.	1889.	1890.
Population—						
Persons per square mile	2·38	3·22	3·36	3·49	3·61	3·61
Birth Rate	38·80	37·03	36·41	36·20	33·73	35·36
Death Rate	15·47	14·89	13·15	13·54	13·43	12·90
Marriage Rate	7·67	7·97	7·42	7·37	6·79	7·15
Finance—						
Revenue per head £	6 15 4	7 15 0	8 8 0	8 6 11	8 4 2	8 12 5
Taxation ditto £	1 19 1	2 13 4	2 12 1	2 10 5	2 8 6	2 9 11
Taxation per cent. to Revenue	28·85	34·39	31·02	30·18	29·54	28·93
General Expenditure per head £	7 11 8	9 5 4	8 18 0	8 10 9	8 7 7	8 13 4
Public Debt per head £	20 1 9	40 19 0	39 6 2	40 12 4	41 11 4	43 3 1
Interchange—						
Imports per head £	19 10 8	21 8 0	18 7 10	19 12 5	20 14 2	20 10 6
Exports (Home Products) per head £	17 9 5	13 3 0	15 2 8	16 4 11	15 5 8	15 12 9
Total Exports per head £	21 12 3	15 17 6	18 1 10	19 12 0	21 2 0	20 0 3
Home Products per square mile	40 8 1	41·47	49·80	55·65	56·08	55·46
Railways—						
Miles open and being constructed per 100,000 persons	117	220	216	212	222	215
Ditto per 10,000 sq. miles	27	69	71	73	72	78
Population per mile open and being constructed	854	454	462	471	498	465
Cost of construction per mile open £	13,873	14,474	12,760	12,072	13,409	13,674
Receipts ditto £	1367	1143	1061	1138	1170	*1206
Receipts per train mile *s. d.*	7 2·02	6 8·01	6 9·88	6 10·12	6 7·72	*6 6·91
Profit per cent. to cost of construction	4·36	2·44	2·83	3·49	3·03	*3·13
Working expenses per mile open £	762·80	789·94	700·51	715·59	753·43	*763·44
Ditto, per train mile *s. d.*	3 11·99	4 7·32	4 6·05	4 3·66	4 3·33	*4 1·92
Ditto, per cent. Receipts	55·79	69·11	66·01	62·90	64·39	*63·27
Service Train Miles, per mile open	3815	3428	3110	3324	3459	3623
Ditto, per head	4·46	6·61	6·33	6·89	7·06	7·44
Ditto, per 100 square miles	1042	2085	2083	2360	2507	2639
Post Office—						
Letters, Newspapers, &c., per head mean population	49·93	78·81	82·70	52·23	89·11	97·33
Offices per 100 square miles	·30	·37	·37	·38	·41	·43
Telegraph Wires—						
Poles per 100 square miles	2·56	3·48	3·48	3·44	3·45	3·61
Offices ditto	·09	·13	·13	·14	·16	·20
Agriculture—						
Acres under cultivation per head	·98	·99	1·02	·94	1·05	1·36
Wheat, bushels per acre	14·68	17·37	12·06	4·76	15·65	10·95
Oats, ditto	19·87	25·09	20·35	13·77	24·30	18·20
Barley, ditto	20·28	21·87	19·20	11·08	20·79	16·48
Potatoes, tons per acre	2·61	2·64	2·94	2·36	2·85	2·72
Hay, ditto	1·33	1·56	1·35	·64	1·73	1·22
Wheat, bushels per head	5·12	5·98	4·59	1·36	5·95	3·31
Oats, ditto	·49	·61	·38	·10	·49	0·23
Barley, ditto	·23	·13	·08	·03	·10	0·07
Live Stock—						
Horses per square mile	1·27	1·16	1·25	1·32	1·39	1·43
Cattle ditto	8·30	4·40	5·07	5·22	5·61	6·14
Sheep ditto	113·93	126·06	151·16	149·67	161·28	180·19

* Government Lines only.

Queensland.

Statistical Summary for the Year 1880 *and Years* 1886-90.

Area—668,497 Square Miles.

	1880.	1886.	1887.	1888.	1889.	1890.
Population 31 Dec., estimated No.	226,077	342,614	366,940	387,463	406,658	422,776
Ditto, mean for the year.....	221,964	332,510	354,777	377,201	397,061	414,717
Revenue—						
From Customs ..... £	483,753	965,754	1,084,709	1,344,504	1,344,472	1,261,757
Other Taxes ..... £	81,559	230,897	253,129	233,167	171,752	266,883
Total Revenue ..... £	1,612,314	2,810,147	3,032,463	3,463,097	3,440,249	3,350,223
General Expenditure—						
Interest on Loans..... £	476,851	841,565	942,815	1,015,667	1,059,769	1,139,034
Total Expenditure..... £	1,673,695	3,202,030	3,350,049	3,368,405	3,594,625	3,684,655
Loans Expenditure—						
On Railways..... £	681,445	1,379,322	1,294,142	1,043,909	1,170,598	1,026,665
Other Public Works..... £	322,504	649,903	601,465	530,349	556,437	451,604
Total Expenditure..... £	1,003,949	2,029,225	1,895,607	1,574,258	1,727,035	1,478,269
Public Debt, 31st December... £	12,192,150	20,820,850	23,320,850	25,840,950	25,840,950	28,105,684
Imports..... £	3,087,296	6,103,227	5,821,611	6,646,738	6,052,562	4,826,622
Exports—						
Wool ..... £	1,387,530	1,413,908	2,368,711	2,258,365	2,680,134	2,524,742
Gold..... £	*823,521	*1,251,162	*1,454,678	*1,669,911	*2,857,030	*2,282,505
Tin..... £	142,977	192,564	223,274	230,360	157,867	199,084
Total Home Products..... £	3,150,771	4,813,092	6,338,205	6,012,722	7,511,744	8,412,244
Total Exports..... £	3,448,160	4,933,970	6,453,945	6,126,362	7,736,309	8,554,512
Shipping—Total Tonnage	1,255,576	1,120,479	924,232	996,229	1,001,009	910,779
Railways—						
Miles open	633	1555	1765	1931	2061	2142
Train Miles.....	795,304	2,663,204	2,785,761	3,223,127	3,626,926	3,722,412
Cost of construction..... £	5,603,763	10,716,352	12,189,919	13,064,598	13,332,044	15,644,350
Receipts..... £	275,602	640,845	719,254	776,794	796,349	821,226
Working Expenses..... £	165,950	476,966	534,381	507,961	594,644	631,749
Telegraphs—						
Miles, poles.....	5768	8225	8772	9167	9453	9830
Offices	159	282	293	311	340	351
Cost of Construction .....£	..	672,061	745,207	758,371	786,617	†
Messages.....	574,445	1,201,495	1,288,183	1,436,931	1,327,937	1,329,925
Receipts.....£	35,878	82,958	83,063	103,790	93,296	91,780
Working Expenses .....£	63,669	100,628	109,066	113,067	117,570	120,556
Post Office—						
Offices	378	662	716	766	834	892
Letters and Post Cards.....	4,576,849	10,503,345	11,586,807	12,897,102	13,070,083	14,594,317
Newspapers and Packets.....	4,652,500	10,711,293	11,261,839	12,195,366	12,851,834	13,291,799
Receipts.....£	45,297	102,273	116,531	128,798	133,469	130,984
Working Expenses .....£	107,565	208,410	214,411	197,437	209,404	203,046
Bank Deposits—Ordinary .....£	3,433,502	7,170,781	8,708,299	11,201,189	10,182,388	10,365,960
Savings .....£	760,443	1,337,965	1,426,018	1,611,876	1,597,784	1,666,855
Property—Assessed Ann. Value £	..	1,819,738	1,812,562	1,848,295	4,240,189	3,945,972
Agriculture—						
Wheat—Acres	12,632	6787	8248	9305	8459	10,390
Bushels	223,243	21,221	182,308	8263	134,335	207,990
Oats—Acres	116	138	550	642	750	411
Bushels	2081	1438	13,343	3626	14,561	8967
Barley—Acres	1499	768	1165	324	1254	584
Bushels	31,433	18,483	31,493	7432	26,630	12,673
Potatoes—Acres	6111	7202	8717	7303	7185	8994
Tons	16,177	26,967	30,679	20,711	25,889	28,810
Hay—Acres	12,021	39,280	25,734	20,978	45,617	31,106
Tons	23,440	75,371	51,806	32,291	88,172	51,116
Land in Crop—Acres.....	113,978	209,561	188,845	192,987	232,643	224,993
Total Land in Cultivation—Acres	122,569	221,843	205,737	214,002	247,098	224,993
Live Stock—						
Horses.....	179,152	278,694	305,865	324,326	352,364	365,812
Cattle	3,162,752	4,071,563	4,473,716	4,654,932	4,872,416	5,558,264
Sheep	6,935,967	9,690,445	12,926,158	13,444,005	14,470,095	18,007,234
Pigs.....	66,248	61,861	73,663	68,994	80,730	96,836

* Including specie. † Not furnished.

Queensland.

Statistical Summary for Year 1880 *and Years* 1886-90.

(Relative and Proportional.)

	1880.	1886.	1887.	1888.	1889.	1890.
Population—						
Persons per square mile	·34	·51	·55	·58	·61	·63
Birth Rate	36·92	37·84	38·09	37·77	36·27	37·15
Death Rate	13·59	16·76	14·56	14·66	15·44	13·60
Marriage Rate	6·97	8·37	8·21	8·63	7·87	7·70
Finance—						
Revenue per head £	7 5 3	8 9 0	8 10 11	9 3 7	8 13 3	7 18 11
Taxation ditto £	2 10 11	3 12 0	3 15 5	4 3 8	3 16 4	3 12 6
Taxation per cent. to Revenue	35·06	42·58	44·12	45·56	44·67	45·62
General Expenditure per head £	7 10 10	9 12 7	9 8 10	8 18 7	9 1 1	8 14 4
Public Debt ditto £	54 18 7	60 15 5	63 11 11	66 13 9	63 10 11	66 9 7
Interchange—						
Imports per head £	13 18 2	18 7 1	16 8 2	17 12 5	15 4 10	11 12 9
Exports (Home Products) per head £	14 3 11	14 9 6	17 17 4	15 18 10	18 18 4	20 5 8
Total Exports per head £	15 10 8	14 16 9	18 3 10	16 4 10	19 9 8	20 12 7
Home Products per square mile	4·71	7·20	9·48	8·99	11·24	12·58
Railways—						
Miles open & being constructed per 100,000 persons No.	363	659	681	692	664	661
Ditto per 10,000 sq.miles No.	12	33	36	39	39	41
Population per mile open and being constructed No.	275	151	147	148	154	154
Cost of construction per mile open £	8853	6892	6906	6765	6459	7304
Receipts per mile open £	435	412	408	402	386	383
Receipts per train mile *s. d.*	6 11·28	4 9·75	5 1·97	4 9·84	4 4·70	4 4·94
Profits per cent. to cost of construction	1·96	1·53	1·52	2·06	1·51	1·21
Working expenses per mile open £	262	307	303	263	288	294
Ditto per train mile *s. d.*	4 2·16	3 6·98	3 10·04	3 1·82	3 3·35	3 4·73
Ditto per cent. receipts	60·21	74·42	74·29	65·39	74·67	76·92
Service Train Miles per mile open	1256	1713	1578	1669	1757	1738
Ditto per head	3·58	8·00	7·85	8·54	9·13	8·98
Ditto per 100 square miles	119	398	447	482	543	557
Post Office—						
Letters, Newspapers, &c. per head mean population	41·58	63·80	64·40	66·52	65·28	67·24
Offices per 100 square miles	·06	·10	·11	·11	·12	·13
Telegraph—						
Miles Poles per 100 square miles	·86	1·23	1·31	1·37	1·41	1·47
Offices ditto	·02	·04	·04	·05	·05	·05
Agriculture—						
Acres under cultivation per head	·55	·66	·58	·57	·62	·54
Wheat, bushels per acre	17·67	3·12	22·10	·89	15·88	20·02
Oats, ditto	17·94	10·42	24·26	5·65	19·41	21·82
Barley, ditto	20·97	24·07	27·03	22·94	21·24	21·70
Potatoes, tons per acre	2·65	2·41	3·52	2·83	3·60	3·20
Hay, ditto	1·95	1·91	2·01	1·54	1·93	1·64
Wheat, bushels per head	1·01	·06	·51	·02	·03	·50
Oats, ditto	·01	·00	·04	·01	·04	·02
Barley, ditto	·14	·05	·09	·02	·07	·03
Live Stock—						
Horses per square mile	·27	·41	·46	·48	·53	·55
Cattle ditto	4·73	6·09	6·69	6·96	7·29	8·31
Sheep ditto	10·38	14·49	19·33	20·11	21·65	26·94

South Australia.

Statistical Summary for the Year 1880 *and Years* 1886-90.

Area—903,690 Square Miles.

	1880.	1886.	1887.	1888.	1889.	1890.
Population, 31 Dec., estimated No.	267,573	312,758	317,446	318,308	324,484	324,556
Ditto, mean for year	263,516	310,592	313,357	314,337	319,923	320,553
Revenue—						
From Customs ..... £	517,631	436,114	467,889	533,665	529,433	598,005
Other Taxes ..... £	11,819	149,009	180,756	205,688	181,815	192,172
Total Revenue ..... £	2,027,963	1,975,269	2,014,102	2,494,556	2,270,433	2,557,772
General Expenditure—						
Interest on Loans ..... £	458,218	698,364	710,030	717,906	798,991	777,995
Total Expenditure ..... £	1,923,605	2,234,395	2,145,135	2,376,399	2,355,927	1,801,263
Loans Expenditure—						
On Railways ..... £	—	896,643	834,906	702,532	594,967	281,302
Other Public Works ..... £	—	503,328	387,575	286,271	664,019	352,556
Total current year ..... £	1,362,140	1,399,971	1,222,481	988,803	1,258,986	633,958
Public Debt on 31st December £	9,865,500	18,340,200	19,168,500	19,147,700	20,435,500	20,401,500‡
Imports ..... £	5,581,497	4,852,750	5,096,293	5,413,638	6,804,451	8,262,673
Exports—						
Wool ..... £	1,716,171	1,955,207	2,036,775	1,610,456	2,194,701	1,546,132
Gold ..... £	—	32,535	138,302	34,205	73,805	192,750
Tin ..... £	—	24	16	425	—	30
Total Home Products ..... £	4,829,577	2,822,138	3,348,561	4,670,773	3,694,692	4,410,062
Total Exports ..... £	5,574,505	4,489,008	5,330,780	6,984,098	7,259,365	8,827,378
Shipping—Total Tonnage	1,200,904	1,558,476	1,677,883	1,973,651	1,959,342	2,190,441
Railways—						
Miles open	667	1382	1420	1500	1756	1628
Train Miles	1,055,645	1,952,546	2,369,608	2,994,563	3,084,200	3,475,946
Cost of Construction ..... £	3,765,965	8,348,800	9,161,783	9,666,223	10,919,696	10,372,455
Receipts ..... £	437,082	555,589	688,207	948,382	927,812	1,124,104
Expenditure ..... £	259,993	359,840	402,163	453,385	519,978	574,541
Telegraph—						
Miles poles	4754	5459	5486	5509	5511	5623
Offices	159	200	206	210	210	218
Cost of Construction ..... £	—	32,198	921,229	1,126,433	848,081	848,081
Messages	564,449	669,442	757,363	994,930	—	—
Receipts ..... £	64,602	78,123	88,036	105,422	100,558	100,752
Post Offices—						
Offices	468	568	585	594	593	609
Letters and Post Cards	10,340,772	13,129,921	15,181,309	17,012,577	16,388,607	16,794,679
Newspapers and Packets	5,790,768	7,372,544	8,085,495	8,701,032	9,998,836	10,711,489
Receipts ..... £	79,676	102,662	106,959	109,178	107,560	111,492
Working Expenses ..... £	—	179,412	177,593	179,492	177,987	181,996
Bank Deposits—Ordinary .... £	4,265,274	4,962,066	5,251,005	6,156,903	6,822,501	7,198,636
Savings ..... £	1,249,468	1,653,081	1,581,100	1,627,541	1,923,292	2,078,575
Property—Assessed Ann. Value £	—	2,269,300	2,109,089	—	2,520,112	2,553,600
Agriculture—						
Wheat—Acres	1,733,542	*	1,950,000†	1,605,000†	1,842,961	1,673,573
Bushels	8,606,510	*	19,012,500†	6,187,000†	14,577,358	9,399,389
Oats—Acres	4355	*	*	*	10,297	12,475
Bushels	50,070	*	*	*	131,449	116,229
Barley—Acres	13,074	*	*	*	19,679	14,472
Bushels	151,886	*	*	*	246,841	175,583
Potatoes—Acres	5587	*	*	*	6383	6626
Tons	16,170	*	*	*	23,853	23,963
Hay—Acres	272,567	*	*	*	329,643	345,150
Tons	261,371	*	*	*	395,920	310,125
Land under cultivation .. acres	2,574,489	*	*	*	2,864,877	2,649,098
Live Stock—Horses	157,915	*	170,000†	*	170,515	187,686
Cattle	307,177	*	440,000†	430,000†	324,412	359,938
Sheep	6,463,897	*	7,254,000†	7,150,000†	6,387,617	7,004,642
Pigs	131,011	*	179,000†	170,000†	106,856	116,277

* Not taken this year. † Estimated. ‡ Exclusive of Treasury Bonds, £750,000.

South Australia.

Statistical Summary for Year 1880 *and Years* 1886-90.

(Relative and Proportional.)

	1880.	1886.	1887.	1888.	1889.	1890.
Population—						
Persons per square mile	·30	·35	·35	·35	·35	·36
Birth Rate	38·94	35·98	34·56	33·43	32·25	32·34
Death Rate	14·84	13·63	12·58	11·96	10·94	12·24
Marriage Rate	8·69	6·36	6·32	6·63	6·44	6·97
Finance—						
Revenue per head £	7 13 11	6 7 2	6 8 6	7 18 9	7 1 3	7 19 7
Taxation £	2 0 2	1 17 8	2 1 5	2 7 1	2 4 6	2 9 4
Ditto per cent. to Revenue	26·11	29·62	32·25	29·64	31·33	30·83
General Expenditure per head £	7 6 0	7 3 10	6 16 11	7 11 2	7 7 3	8 0 11
Public Debt ditto £	36 17 5	58 12 10	60 7 8	60 3 1	62 19 7	62 17 2
Interchange—						
Imports per head £	21 3 7	15 12 6	16 5 4	17 4 5	21 5 4	25 15 5
Exports Home Products ditto £	18 6 6	9 1 8	10 13 9	14 17 2	11 11 0	13 15 4
Total Exports ditto £	21 3 1	14 9 0	17 0 3	22 4 4	22 13 10	27 11 7
Home Products per sq. mile £	5·34	3·12	3·71	5·17	4·09	4·88
Railways—						
Miles open and being constructed per 100,000 persons	253	579	581	580	566	525
Ditto 10,000 square miles	7·38	19·92	20·17	20·18	20·04	19·00
Population per mile open and being constructed	395	172	172	175	179	193
Cost of Construction per mile open £	5646	6041	6452	6444	6218	6443
Receipts ditto £	655·29	477·72	526·56	635·01	528·36	698
Receipts per train mile *s. d.*	8 3·36	5 8·28	5 9·70	6 4·01	6 0·20	6 5·62
Profit per cent. to cost of construction	4·70	2·34	3·12	5·12	3·73	5·30
Working expenses per mile open £	389·79	309·41	307·70	303·57	296·12	356·86
Ditto per train mile *s. d.*	5 1·44	3 8·23	3 4·73	3 0·33	3 4·46	3 3·67
Ditto per cent. receipts	59·48	64·77	58·44	47·81	56·04	51·10
Service train miles per mile open	1583	1679	1813	2005	1756	2066
Ditto per head	4·01	6·28	7·56	9·52	9·64	10·71
Ditto per 100 square miles	116	216	262	331	341	385
Post Office—						
Letters, Newspapers, &c., per head mean population	61·22	66·01	74·25	81·80	82·48	85·82
Offices per 100 square miles	·05	·06	·06	·07	·07	·07
Telegraphs—						
Miles poles per 100 sq. miles	·53	·60	·61	·61	·61	·62
Offices ditto	·02	·02	·02	·02	·02	·02
Agriculture—						
Acres under cultivation per head	9·77	—	—	—	8·95	8·26
Wheat, bushels per acre	4·96	—	9·75	8·86	7·91	5·62
Oats, ditto	11·49	—	—	—	12·77	9·32
Barley, ditto	11·62	—	—	—	12·54	12·13
Potatoes, tons ditto	2·89	—	—	—	3·74	3·62
Hay, ditto	·96	—	—	—	1·20	0·90
Wheat, bushels per head	32·66	—	—	—	46·22	29·32
Oats, ditto	·19	—	—	—	·42	·36
Barley, ditto	·58	—	—	—	·78	·55
Live Stock—						
Horses per square mile	·17	—	·18	—	·19	·21
Cattle, ditto	·34	—	·48	·47	·36	·40
Sheep, ditto	7·15	—	8·03	7·91	7·07	7·75

Western Australia.

Statistical Summary for the Year 1880 *and Years* 1886–90.

Area—1,060,000 Square Miles.

	1880.	1886.	1887.	1888.	1889.	1890.
Population, 31 Dec., estimated No.	29,019	39,584	42,488	42,137	43,698	46,290
Ditto, mean for the year	28,843	37,184	41,699	42,059	43,053	45,117
Revenue—						
From Customs ..... £	95,511	164,048	170,972	159,059	171,990	182,546
Other Taxes ..... £	5746	20,951	17,939	20,885	22,258	22,066
Total Revenue ..... £	180,050	388,564	377,903	357,003	442,725	414,314
General Expenditure—						
Interest on Loans ..... £	—	59,780	65,840	63,820	68,170	71,773
Total Expenditure..... £	204,338	394,675	456,897	385,130	386,000	401,736
Loans—						
Expenditure on Railways... £	—	101,297	112,144	6952	4245	1353
Other Public Works ..... £	—	32,902	92,405	36,900	131,867	14,553
Total current year..... £	—	134,199	204,549	43,852	135,112	15,906
Public Debt on 31st December £	361,000	1,286,000	1,280,700	1,275,200	1,371,981	1,367,445
Imports ..... £	353,669	758,013	832,213	786,250	818,127	874,447
Exports—						
Wool ..... £	—	332,579	333,785	423,762	395,903	261,352
Gold..... £	—	*	*	*	58,871	86,664
Tin..... £	—	*	*	*	300	5400
Total Home Products..... £	—	626,524	601,185	673,519	748,899	659,661
Total Exports..... £	502,770	630,393	604,656	680,344	761,391	671,813
Shipping—Total Tonnage	250,429	497,508	464,637	812,393	1,004,818	904,861
Railways—						
Miles open	72	†154	†171	†204	†204	†198
Train miles.....	—	258,369	338,000	359,585	383,000	490,000
Cost of construction..... £	—	703,610	771,951	892,243	871,377	832,497
Receipts..... £	—	35,896	40,685	38,382	40,849	45,814
Expenditure ..... £	—	41,388	47,712	44,081	54,339	62,270
Telegraphs—						
Miles poles.....	1555	2385	2548	2961	2961	2921
Offices	—	38	38	42	42	42
Cost of construction ..... £	—	*	*	*	199,800	234,741
Messages	—	165,613	174,116	180,735	197,587	*
Receipts ..... £	—	7428	8439	8353	10,165	10,328
Expenditure ..... £	—	*	*	*	*	*
Post Office—						
Offices	—	80	79	78	81	82
Letters and Post Cards.....	—	1,847,694	2,217,175	2,104,500	2,737,034	3,175,651
Newspapers and Packets	—	1,300,078	1,281,763	2,314,779	1,640,506	2,465,777
Receipts ..... £	—	13,305	13,413	14,269	13,367	15,459
Working Expenses..... £	—	31,112	40,298	35,429	33,702	36,609
Bank Deposits—Ordinary..... £	*	*	*	*	837,694	952,083
Savings..... £	*	*	*	*	31,061	21,553
Property—Assessed Ann. Value £	*	*	*	*	*	*
Agriculture—						
Wheat—Acres	27,687	24,043	29,491	30,740	35,517	33,820
Bushels	413,644	288,516	269,611	322,759	497,238	465,025
Oats—Acres	1320	1766	1689	1787	2075	1934
Bushels	25,080	28,512	25,424	41,852	41,500	37,693
Barley—Acres	6364	5185	5935	5009	5475	5322
Bushels.....	114,552	82,816	69,710	73,630	93,075	87,813
Potatoes—Acres	471	356	474	481	462	510
Tons	1649	1071	1130	1974	1386	1655
Hay—Acres	19,563	25,718	25,807	23,914	25,694	23,183
Tons.....	24,454	25,718	24,157	23,914	25,694	26,495
Land under crop	*	84,403	66,162	65,699	73,408	69,676
Land in cultivation	63,903	86,248	107,592	106,015	117,833	122,033
Live Stock—Horses	34,568	38,360	41,100	41,390	42,806	44,384
Cattle	63,719	88,254	93,444	95,822	119,571	130,970
Sheep	1,231,717	1,809,071	1,909,940	2,112,393	2,366,681	2,524,913
Pigs	24,232	24,655	23,627	25,083	27,079	28,985

* Not ascertained. † Does not include private lines.

Western Australia.

Statistical Summary for Year 1880 *and Years* 1886–90.

(Relative and Proportional.)

	1880.	1886.	1887.	1888.	1889.	1890.
Population—						
Persons per square mile	·03	·04	·04	·04	·04	·04
Birth Rate	32·35	39·43	37·34	36·09	37·02	34·60
Death Rate	13·24	21·67	16·83	16·00	14·19	11·97
Marriage Rate	7·41	7·99	7·58	7·23	6·97	6·16
Finance—						
Revenue per head £	6 4 10	10 9 0	9 1 3	8 9 9	10 5 8	9 3 8
Taxation ditto £	3 10 3	4 19 6	4 10 7	4 5 7	4 10 3	4 10 8
Ditto per cent. to Revenue	56·24	47·61	49·99	50·40	43·88	49·39
General Expenditure per head £	7 1 8	10 12 3	10 19 2	9 3 2	8 19 4	8 18 1
Public Debt ditto £	12 8 10	32 9 9	30 2 10	30 5 3	31 7 11	29 10 10
Interchange—						
Imports per head £	12 5 3	20 7 8	19 19 2	18 13 11	19 0 1	19 7 9
Exports Home Products ditto £	—	16 16 11	14 8 4	16 0 3	17 7 10	14 12 5
Total Exports ditto £	17 18 7	16 19 0	14 10 0	16 3 6	17 13 8	14 17 10
Home Products per sq. mile £	·47	·59	·57	·64	·71	·62
Railways—						
Miles open & being constructed per 100,000 persons	—	538	484	1063*	1888*	1815
Ditto per 10,000 sq. miles	—	1	2	4	7*	7
Population per mile open and being constructed	—	186	206	94	54*	55
Cost of construction per mile open £	—	4569	4514	4374	4271	4205
Receipts per mile worked £	—	233	253	204	217	231
Ditto per train mile *s. d.*	—	2 9·34	2 4·89	2 1·62	2 1·60	1 10·44
Profit per cent. to cost of construction	—	— ·77	— ·91	— ·64	— 1·55	— 1·98
Working Expenses per mile worked £	—	268·75	296·35	234·47	289·04	319·40
Ditto per train mile *s. d.*	—	3 2·44	2 9·88	2 5·42	2 10·05	2 6·50
Ditto per cent. receipts	—	115·30	117·27	114·85	133·02	135·90
Service Train Miles per mile open	—	1678	2099	1912	2037	2681
Ditto per head	—	6·94	8·01	8·55	8·89	10·58
Ditto per 100 square miles	—	24	32	34	36	46
Post Office—						
Letters, Newspapers, &c., per head mean population	—	84·65	83·93	105·07	101·68	125·07
Offices per 100 square miles	—	·008	·007	·007	·007	·008
Telegraphs—						
Miles Poles, per 100 square miles	·15	·22	·24	·28	·28	·28
Offices, ditto	—	·003	·003	·003	·003	·004
Agriculture—						
Acres under cultivation per head	2·22	2·32	2·58	2·52	2·74	2·70
Wheat, bushels per acre	14·94	12·00	9·14	10·50	14·00	13·75
Oats, ditto	19·00	16·08	15·05	23·42	20·00	19·48
Barley, ditto	18·00	15·97	11·75	14·70	17·00	16·50
Potatoes, tons per acre	3·50	3·01	2·38	4·10	3.00	3·24
Hay, ditto	1·25	1·00	·94	1·00	1·00	1·14
Wheat, bushels per head	14·34	7·75	6·47	7·67	11·55	10·31
Oats, ditto	·87	·77	·61	·99	·96	·84
Barley, ditto	3·97	2·22	1·67	1·75	2·16	1·95
Live Stock—						
Horses per square mile	·03	·03	·04	·04	·04	·04
Cattle ditto	·06	·08	·09	·09	·11	·12
Sheep ditto	1·16	1·71	1·80	1·99	2·23	2·38

* Includes private lines.

New Zealand.

Statistical Summary for the Year 1880 *and Years* 1886–1890.

Area—104,471 Square Miles.

	1880.	1886.	1887.	1888.	1889.	1890.
Population 31 Dec., estimated.. No.	484,864	589,386	603,361	607,380	620,279‡	630,781
Ditto, mean for the year.. No.	474,296	582,117	596,374	605,371	613,830	625,530
Revenue—						
From Customs .....£	1,264,807	1,315,801	1,273,236	1,390,717	1,473,379	1,535,868
Other Taxes .....£	277,393	646,361	602,999	640,941	616,956	638,117
Total Revenue .....£	3,285,042	3,688,016	3,463,495	4,109,815	3,991,919	4,208,029
General Expenditure—						
Interest on Loans .....£	1,473,109	1,753,253	1,499,784	1,569,556	1,616,501	1,640,289¶
Total Expenditure .....£	4,019,850	4,310,875	3,956,290	3,962,919	3,981,721	4,208,029
Loans Expenditure—						
On Railways.....£	1,079,362	629,347	820,289	284,391	289,571	187,229
Other Public Works .....£	1,149,628	704,136	1,160,361	455,283	191,775	158,578
Total Expenditure .....£	2,228,990	1,333,483	1,980,650	739,674	481,346	345,807
Public Debt on 31st December..£	28,583,231	37,587,776	34,954,035	36,971,691	37,162,891	37,359,157
Imports.....£	6,162,011	6,759,013	6,245,515	5,941,900	6,297,097	6,260,525
Exports—						
Wool .....£	3,169,300	3,072,971	3,321,074	3,115,008	3,976,375	4,150,599
Gold.....£	1,340,341§	1,074,455§	932,892§	1,157,055§	939,093§	989,664
Total Home Products .....£	6,102,400	6,386,682	6,551,081	7,255,128	9,042,008	9,428,761
Total Exports.....£	6,352,692	6,672,791	6,866,169	7,767,325	9,339,965	9,811,720
Shipping—Total Tonnage.....	819,716	990,903	983,337	1,057,906	1,195,886	1,312,474
Railways—						
Miles open.....	1288	1721	1841	1861	1897‖	1956
Train Miles	—	3,008,949	2,944,786	2,796,007	4,088,132	3,028,364
Cost of Construction ..... £	9,228,334	13,017,567	13,352,978	14,210,214	14,640,941	15,029,095
Receipts .....£	836,077	998,768	994,843	1,052,864	1,160,736	1,193,502
Expenditure .....£	521,958	699,072	687,328	667,132	706,126	726,543
Telegraphs—						
Miles Poles	3758	4546	4646	4790	4874	5060
Offices	227	375	437	458	489	520
Cost of Construction .....£	—	596,793	—	625,086	631,144	561,873
Messages.....	1,304,712	1,836,266	1,835,394	1,765,860	1,802,987	—
Receipts.....£	100,023	106,638	106,548	133,925	106,462	110,697
Expenditure .....£	101,378	78,473	97,902	106,707	107,804	110,456
Post Office—						
Offices	855	1089	1117	1145	1189	1058
Letters and Post Cards.....	23,423,359	39,518,479	40,985,467	42,052,117	44,151,393	22,877,320
Newspapers and Packets.....	11,945,367	17,791,706	19,601,020	20,931,157	22,102,509	15,541,027
Receipts.....£	149,517	206,029	213,355	207,402	197,311	199,735
Working Expenses.....£	153,095	168,069	165,762	160,278	154,101	85,006
Banks Deposits—Ordinary.....£	8,538,935	10,579,711	11,031,614	11,155,779	11,528,424	12,368,610
Savings .....£	1,148,992	2,133,861	2,407,776	2,691,693	1,883,043	3,137,023
Property—Assessed Ann. Value.£	—	—	—	—	2,329,085	2,360,945
Agriculture—						
Wheat—Acres.....	324,933	253,025	357,359	362,153	335,861	301,460
Bushels.....	8,147,705	6,297,638	9,424,059	8,770,246	8,448,506	5,723,610
Oats—Acres.....	215,007	387,228	336,474	367,225	426,071	346,224
Bushels.....	6,891,251	11,973,295	10,512,119	10,977,065	13,673,584	9,947,036
Barley—Acres	46,877	21,535	27,912	46,027	42,402	32,740
Bushels	1,221,241	558,606	760,874	1,402,537	1,342,823	758,833
Potatoes—Acres	22,530	27,683	25,338	26,331	30,577	32,691
Tons.....	111,329	134,965	138,060	133,682	159,729	178,121
Hay—Acres	54,028	57,938	67,425	50,656	45,889	44,045
Tons	68,710	79,103	100,507	71,296	65,476	62,901
Land under Crop—Acres	1,029,764	—	—	—	1,560,605	1,636,179
Land under Cultivation—Acres.	—	6,868,062	7,309,689	7,693,974	7,670,167	—
Live Stock—						
Horses.....	161,736	187,382†	187,382†	187,382†	187,382†	187,382†
Cattle	698,637	895,461†	895,461†	895,461†	895,461†	895,461†
Sheep	12,985,085	16,677,445	15,235,561	15,122,133	15,503,263	16,200,358
Pigs.....	200,083	369,992†	369,992†	369,992†	369,992†	369,992†

* Census, 1881. † Census, 1886. ‡ Exclusive of 41,969 Maoris. § Including specie. ‖ Does not include private lines.
¶ Exclusive of £288,000, payment on account of Sinking Fund.

New Zealand.

Statistical Summary for Year 1880 *and Years* 1886-90.

(Relative and Proportional.)

	1880.	1886.	1887.	1888.	1889.	1890.
Population—						
Persons per square mile	4·64	5·65	5·80	5·81	5·94	6·04
Birth Rate	40·78	33·15	32·09	31·22	30·07	29·22
Death Rate	11·46	10·54	10·29	9·43	9·40	9·58
Marriage Rate	6·71	6·03	5·97	5·97	5·92	6·07
Finance—						
Revenue per head £	6 18 6	6 6 9	5 16 2	6 15 9	6 10 1	6 14 7
Taxation ditto £	3 5 1	3 7 5	3 2 11	3 7 1	3 8 1	3 9 6
Ditto per cent. to Revenue	46·94	53·20	54·17	49·43	52·36	51·66
General Expenditure per head £	8 9 6	7 8 1	6 12 8	6 10 11	6 9 9	6 14 7
Public Debt per head £	58 19 0	63 15 6	57 18 8	60 17 5	59 18 3	59 4 6
Interchange—						
Imports per head £	12 19 2	11 12 3	10 9 5	9 16 3	10 5 2	10 0 2
Exports (Home Products) per head £	12 17 4	10 19 5	10 19 8	11 19 9	14 14 7	15 1 6
Total Exports per head £	13 7 10	11 9 3	11 10 3	12 16 8	15 4 4	15 13 8
Home Products per sq. mile £	58·40	61·17	62·97	69·44	86·55	90·24
Railways—						
Miles open & being constructed, per 100,000 persons	312	340	336	320	331	339
Ditto, per 10,000 sq. miles	142	190	192	186	195	203
Population per mile open and being constructed	320	294	301	312	305	297
Cost of construction per mile open £	7164·86	7563·95	7617·22	7581·78	7717·94	7683·59
Receipts ditto £	649·13	578·32	567·51	561·40	611·88	610
Ditto per train mile *s. d.*	—	6 7·69	6 9·08	7 1·62	5 8·14	7 10·56
Profit per cent. to cost of construction	3·38	2·30	2·30	2·60	3·11	3·11
Working Expenses per mile open £	405·25	404·79	392·09	364·12	372·23	371·44
Ditto per train mile *s. d.*	—	4 7·75	4 8·02	4 7·54	3 5·45	4 9·60
Ditto per cent. to Receipts	62·43	69·99	69·09	64·86	60·83	60·88
Service Train Miles per mile open	—	1742	1680	1573	2155	1548
Ditto per head	—	5·17	4·94	4·61	6·66	4·80
Ditto per 100 square miles	—	2882	2830	2676	3913	2898
Post Office—						
Letters, Newspapers, &c., per head mean population	74	98	102	104	108	61
Offices per 100 square miles	·82	1·04	1·07	1·08	1·14	1·01
Telegraphs—						
Miles Poles per 100 square miles	3·60	4·35	4·44	4·59	4·67	4·84
Offices ditto	·22	·36	·41	·43	·47	·50
Agriculture—						
Acres under cultivation per head	2·71	11·80	12·26	12·71	2·54	2·62
Wheat, bushels per acre	25·08	24·89	26·37	24·22	25·15	18·98
Oats, ditto	32·05	30·92	31·24	29·89	32·09	28·73
Barley, ditto	26·05	25·94	27·26	31·15	31·67	23·17
Potatoes, tons per acre	4·94	4·88	5·45	5·08	5·22	5·45
Hay, ditto ditto	1·27	1·36	1·49	1·41	1·43	1·43
Wheat, bushels per head	17·18	10·81	15·80	14·49	13·76	9·15
Oats, ditto	14·53	20·56	17·63	18·13	22·28	15·90
Barley, ditto	2·57	0·96	1·28	2·32	2·19	1·21
Live Stock—						
Horses per square mile	1·55	1·79	1·79	1·79	1·79	1·79
Cattle ditto	6·69	8·57	8·57	8·57	8·57	8·57
Sheep ditto	124·26	159·74	160·31	144·74	148·40	155·60

Australasian Statistics, 1890.

	Victoria.	N. S. Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	New Zealand.
Area ..... Square Miles	87,884	310,700	668,497	†903,690	1,060,000	26,215	104,471
Population, 31st Dec..... No.	1,133,266	1,121,857	422,776	324,556	46,290	145,290	630,781
Ditto, Mean	1,118,496	1,101,839	414,717	320,553	45,117	143,734	625,530
Births	35,578	38,964	15,407	10,364	1561	4813	18,278
Deaths.....	18,012	14,217	5638	3923	40	2118	5994
Marriages.....	9187	7876	3195	2235	78	954	3797
Revenue—							
From Customs..... £	2,658,010	1,888,321	1,261,757	598,005	182,546	329,067	1,535,868
Other Taxes ..... £	972,804	860,018	266,883	192,172	22,066	125,364	638,117
Total Revenue..... £	8,519,159	9,498,620	3,350,223	2,557,772	414,314	758,100	4,208,029
General Expenditure—							
Interest on Loans..... £	1,548,145	1,895,655	1,139,034	777,995	71,773	223,652	ε1,640,289
Total Expenditure ..... £	b9,645,737	9,549,885	3,684,655	1,801,263	401,736	722,746	4,208,029
Loans Expenditure—							
On Railways..... £	2,933,087	1,190,502	1,026,665	281,302	1353	1,394,483	187,229
Other Public Works ..... £	820,918	1,668,717	451,604	352,556	14,553	233,798	158,578
Total Current Year ..... £	3,754,005	2,859,219	1,478,269	633,958	15,906	1,628,281	346,807
Public Debt on 31st December..... £	41,377,693	48,425,333	28,105,684	f20,401,500	1,367,445	6,432,800	37,359,157
Imports ..... £	22,954,015	22,615,004	4,826,622	8,262,673	874,447	1,897,512	6,260,525
Exports—							
Wool..... £	5,933,603	9,232,672	2,524,742	1,546,132	261,352	419,173	4,150,599
Gold..... £	a2,739,503	a2,289,022	a2,282,505	a192,750	a86,664	a127,605	a989,664
Tin..... £	272	436,728	199,084	30	5400	296,761	*
Silver..... £	26,659	2,781,743	124,262	494,962	—	16,872	10,262
Total Home Products ..... £	10,291,821	17,232,725	8,412,244	4,410,062	659,661	1,430,806	9,428,761
Total Exports ..... £	13,266,222	22,054,937	8,554,512	8,827,378	671,813	1,486,992	9,811,720
Shipping—Total Tonnage.....	4,363,341	4,761,872	910,779	2,190,441	904,861	951,247	1,312,474
Railways—							
Miles open and being constructed ...	2900	2414	c 2743	d 1682	d819	d473	d2121
Train Miles.....	b 11,773,152	d8,199,966	3,722,412	3,475,946	490,000	880,447	3,028,364
Cost of Construction ..... £	b 31,800,515	30,944,850	15,644,350	10,372,455	832,497	3,088,882	15,029,095
Receipts ..... £	b 3,131,866	c2,633,086	821,226	1,124,104	45,814	186,934	1,193,502
Expenditure ..... £	b 2,132,158	c1,665,835	631,749	574,541	62,270	167,340	726,543
Telegraphs—							
Miles Poles	8013	11,231	9830	5623	2921	2004	5060
Offices.....	748	628	351	218	42	186	520
Cost of Construction..... £	*	743,698	*	848,081	234,741	176,811	561,873
Messages	*	*	*	*	*	*	*
Receipts ..... £	175,777	186,018	91,780	100,752	10,328	30,794	110,697
Expenditure ..... £	e	199,783	120,556	e	e	24,340	110,456
Post Office—							
Offices.....	1671	1663	892	609	82	315	1058
Letters and Post Cards	62,526,448	57,707,900	14,594,317	16,794,679	3,175,651	5,172,824	22,877,320
Newspapers and Packets.....	30,413,021	49,536,800	13,291,799	10,711,489	2,465,777	5,904,741	15,541,027
Receipts..... £	330,263	443,876	130,984	111,492	15,459	41,759	199,735
Working Expenses ..... £	626,984	449,210	203,046	181,996	36,609	46,137	85,006
Bank Deposits—Ordinary..... £	40,292,065	35,460,118	10,365,960	7,198,636	952,083	4,158,708	12,368,610
Savings..... £	5,405,644	4,730,469	1,666,855	2,078,575	21,553	521,250	3,137,023
Property Assessed—Annual Value.. £	13,265,543	8,336,634	3,945,972	2,553,600	*	1,080,139	2,360,945
Agriculture—							
Wheat, acres	1,145,163	333,233	10,390	1,673,573	33,820	39,452	301,460
Ditto, bushels	12,751,295	3,649,216	207,990	9,399,389	465,025	642,980	5,723,610
Oats, acres	221,048	14,102	411	12,475	1934	20,740	346,224
Ditto, bushels	4,919,325	256,659	8967	116,229	37,693	519,395	9,947,036
Barley, acres	87,751	4937	584	14,472	5322	4376	32,740
Ditto, bushels	1,571,599	81,383	12,673	175,583	87,813	99,842	758,833
Potatoes, acres	53,818	19,406	8994	6626	510	20,133	32,691
Ditto, tons	204,155	52,791	28,810	23,963	1655	73,158	178,121
Hay, acres.....	413,043	175,242	31,106	345,150	23,183	45,381	44,045
Ditto, tons	567,746	213,034	51,116	310,125	26,495	52,021	62,901
Land under cultivation	2,652,748	1,498,635	224,993	2,649,098	122,033	517,174	1,636,179
Live Stock—							
Horses	436,459	444,163	365,812	187,686	44,384	31,165	187,392
Cattle	1,782,978	1,909,090	5,558,264	359,938	130,970	162,440	895,461
Sheep.....	12,736,143	55,986,431	18,007,234	7,004,642	2,524,913	1,619,256	16,200,358
Pigs	282,457	284,453	96,836	116,277	28,985	81,716	369,992

* Not furnished, incomplete, or partly estimated. † Including Northern Territory. ‡ The population for certain Colonies is subject to correction on basis of Census 1891: *e.g.*, since the above was compiled the following amendments have been made:—Queensland, 392,963; Western Australia, 48,626; and New Zealand, 625,662.

a Including specie. b Information for year ending 30th June. c Exclusive of private lines. d Includes private lines. e Included in Post Office, f Exclusive of Treasury Bonds, £750,000. ε Exclusive of £288,000, payments on account of Sinking Fund.

Australasian Statistics, 1890.

	Victoria.	N. S. Wales.	Queensland.	South Australia.	Western Australia.	Tasmania.	New Zealand.
Population—							
Persons per square mile	12·90	3·61	·63	·36	·04	5·54	6·04
Birth Rate	33·59	35·36	37·15	32·34	34·60	33·49	29·22
Death Rate	16·10	12·90	13·60	12·24	11·97	14·74	9·58
Marriage Rate	8·21	7·15	7·70	6·97	6·16	6·64	6·07
Finance—							
Revenue per head* £	7 8 1	8 12 5	7 18 11	7 19 7	9 3 8	5 5 6	6 14 7
Taxation ditto* £	3 3 1	2 9 11	3 12 6	2 9 4	4 10 8	3 3 3	3 9 6
Ditto per cent. to Revenue* £	42·64	28·93	45·62	30·83	49·39	59·04	51·66
Government Expenditure per head* £	8 7 8	8 13 4	8 14 4	8 0 11	8 18 1	5 0 7	6 14 7
Public Debt, 31st Dec., per head £	36 10 2	43 3 1	66 9 7	62 17 2	29 10 10	44 5 6	59 4 6
Interchange—							
Imports per head £	20 10 6	20 10 6	11 12 9	25 15 5	19 7 9	13 4 0	10 0 2
Exports, Home Products, per head £	9 4 0	15 12 9	20 5 8	13 15 4	14 12 5	9 19 1	15 1 6
Total Exports, per head £	11 17 2	20 0 3	20 12 7	27 11 7	14 17 10	10 6 11	15 13 8
Home Products, per square mile £	117·11	55·46	12·58	4·88	·62	54·58	90·24
Railways—							
Miles open and being constructed per 100,000 persons	256	215	661	525	1815	329	339
Ditto per 10,000 square miles	330	78	41	19	7	180	203
Population per mile open and being constructed	391	465	154	193	55	304	297
Cost of construction per mile open £	12,869	13,674	7304	6443	4205	7742	7684
Receipts £	1267	1206	383	698	231	548	610
Ditto per train mile *s. d.*	5 3·84	6 6·91	4 4·94	6 5·62	1 10·44	4 5·11	7 10·56
Profit per cent. to cost of construction £	3·14	3·13	1·21	5·30	—1·98	·63	3·11
Working expenses per mile open £	862·87	763·44	294·93	356·86	319·40	430	371·44
Ditto per train mile *s. d.*	3 7·46	4 1·92	3 4·73	3 3·67	2 6·50	3 11·55	4 9·60
Ditto per cent. to Receipts £	68·07	63·27	76·92	51·10	135·90	89·52	60·88
Service Train Miles per mile open	4764	3623	1738	2066	2681	2477	1548
Ditto per head	10·62	7·44	8·98	10·71	10·58	5·88	4·80
Ditto per 100 square miles	13,395	2639	557	385	46	3222	2898
Post Office—							
Letters, Newspapers &c., per head of mean population	83·09	97·33	67·24	85·82	125·07	77·07	61·42
Offices per 100 square miles	1·90	·43	·13	·07	·008	1·20	1·01
Telegraphs—							
Miles Poles per 100 square miles	9·12	3·61	1·47	·62	·28	7·64	4·84
Offices ditto	·85	·20	·05	·02	·004	·71	·50
Agriculture—							
Acres under cultivation per head	2·37	1·36	·54	8·26	1·55	3·60	2·62
Wheat, bushels per acre	11·13	10·95	20·02	5·62	13·75	16·29	18·98
Oats, ditto	22·25	18·20	21·82	9·32	19·48	25·04	28·73
Barley, ditto	17·91	16·48	21·70	12·13	16·50	22·86	23·17
Potatoes, tons per acre	3·79	2·72	3·20	3·62	3·24	3·63	5·45
Hay, ditto	1·37	1·22	1·64	0·90	1·14	1·14	1·43
Wheat, bushels per head	11·40	3·31	·50	29·32	10·31	4·47	9·15
Oats, ditto	4·40	·23	.02	·36	·84	3·61	15·90
Barley, ditto	1·41	·07	·03	·55	1·95	·69	1·21
Live Stock—							
Horses per square mile	4·97	1·43	·55	·21	·04	1·19	1·79
Cattle ditto	20·29	6·14	8·31	·40	·12	6·20	8·57
Sheep ditto	144·92	180·19	26·94	7·75	2·38	61·77	155·60

* Calculated on the mean population of the financial year in each Colony.

Australasian Colonies.

Statistical Summary for the Years 1880 *and* 1887–90.

Area—3,161,457 Square Miles.

	1880.	1887.	1888.	1889.	1890.
Number of Colonies	7	7	7	7	7
Population	2,724,255	3,551,751	3,678,046	3,786,827	3,824,816††
Revenue—					
From Customs £	6,175,100	7,415,179	7,961,965	8,612,339	8,453,574
Other Taxes £		2,416,134	2,725,354	2,749,198	3,077,424
Total Revenue £	17,071,393	24,805,766	27,558,497	28,563,622	29,306,217
General Expenditure—					
Interest on Loans £	—	6,365,775	6,682,378	7,018,180	7,296,543
Total Expenditure £	18,796,791	26,236,841	27,162,318	28,170,120	30,792,046
Loans Expenditure—					
On Railways £	—	6,229,129	4,961,864	5,918,079	7,014,621
Other Public Works £	—	3,521,208	3,665,509	4,154,786	3,700,824
Total Current Year £	—	9,750,337	8,627,373	10,072,815	10,715,445
Public Debt on 31st December £	89,410,249	156,956,187	166,462,542	173,843,848	183,469,612
Imports £	45,060,665	57,420,836	65,256,881	68,849,089	67,690,798
Exports—					
Wool £	—	22,749,255	22,243,966	26,244,267	24,067,273
Gold £	—	—	—	9,535,225‖	8,667,193
Tin £	—	1,458,836	1,469,727	991,623	938,275
Silver £	—	*	*	4,036,433	3,454,760
Total Home Products £	—	42,239,829	47,562,170	49,639,929‖	51,866,080
Total Exports £	48,866,168	50,552,983	57,605,472	62,585,855	64,673,574
Shipping—Total Tonnage	8,552,606	12,966,392	14,689,766	15,993,658	15,395,015
Railways—					
Miles Open and being constructed	4881	11,893	12,036	12,902	13,152
Train Miles	—	23,596,573	26,566,829	29,422,549	31,570,287
Cost of Construction £	—	89,647,004	93,501,617	101,934,596	107,712,644
Receipts £	—	7,244,586	8,180,220	8,748,876	9,136,532
Expenditure £	—	4,682,711	5,124,259	5,607,703	5,960,436
Telegraphs—					
Miles, poles	27,831	38,104	39,205	39,481	44,682
Offices	—	2079	2247	2403	2693
Cost of Construction £	*	*	*	*	*
Messages	*	*	*	*	*
Receipts £	—	601,661	685,498	709,636	706,146
Expenditure £	—	1,143,732†	1,236,389†	1,201,852†	637,131†
Post Office—					
Offices	—	5449	5608	5851	6290
Letters and Post Cards	—	160,654,529	175,469,316	183,229,924	182,849,139
Newspapers and Packets	—	111,046,337	86,356,787‡	124,543,268	127,865,554
Receipts £	—	1,155,255	864,517§	1,256,827	1,273,568
Working Expenses £	—	1,620,183†	1,592,661†	1,595,993†	1,628,988†
Banks Deposits—Ordinary £	—	*	*	105,875,934	110,796,180
Savings £	—	*	*	15,184,687	17,561,369
Property—Assessed Annual Value £	—	*	*	*	*
Agriculture—					
Wheat—Acres	3,376,933	4,007,929	3,569,849	3,870,346	3,537,091
Bushels	31,577,248	47,588,161	26,205,977	42,480,131	32,839,505
Oats—Acres	392,663	585,575	616,254	738,216	616,934
Bushels	10,126,474	15,982,012	14,971,267	21,198,226	15,805,304
Barley—Acres	152,631	99,860	157,528	169,420	150,182
Bushels	2,917,700	2,166,533	2,972,972	3,759,184	2,787,726
Potatoes—Acres	110,067	105,767	111,927	126,312	142,178
Tons	359,071	495,267	414,268	490,332	562,653
Hay—Acres	769,863	1,084,093	1,077,361	1,161,408	1,077,150
Tons	887,513	1,368,019	914,658	1,681,735	1,283,438
Land under Cultivation—Acres	6,843,777	14,490,654**	8,616,401¶	9,070,479¶	9,248,503
Live Stock—					
Horses	1,230,136	1,439,477	1,486,819	1,542,957	1,697,061
Cattle	8,225,779	8,959,043	9,211,801	9,497,665	10,799,141
Sheep	72,160,109	97,903,922	96,580,640	101,268,084	114,078,977
Pigs	—	1,206,262	1,171,697	1,131,547	1,260,716

* Not ascertained. † In several Colonies the Post and Telegraph Departments are worked together.
‡ Not including newspapers, New South Wales. § Not including receipts, Victoria. ‖ Including specie.
¶ Not including permanent artificially sown grasses. ** Including permanent artificially sown grasses.
†† Subsequent amendments made in some Colonies reduce total to 3,791,770.

Australasian Colonies.

Statistical Summary for the Years 1880, *and* 1887–90.

(Relative and Proportional.)

	1880.	1887.	1888.	1889.	1890.
Population—					
Persons per square mile	0·86	1·12	1·16	1·20	1·21
Birth Rate	36·13	34·42	34·07	32·99	33·68
Death Rate	13·99	13·64	13·41	14·28	13·38
Marriage Rate	7·07	7·19	7·48	7·18	7·30
Finance—					
Revenue per head £	6 7 6	7 2 3	7 12 8	7 13 1	7 13 11†
Taxation ditto £	2 6 1	2 16 4	2 19 3	3 10 10	3 0 7†
Taxation per cent. to Revenue	36·17	39·63	38·79	39·78	39·34
General Expenditure per head £	7 0 4	7 10 5	7 10 6	7 11 1	8 1 9†
Public Debt per head £	33 0 0	44 3 10	45 5 2	45 18 2	47 19 4
Interchange—					
Imports per head £	16 16 6	16 9 3	18 1 7	18 9 0	17 19 7
Exports (Home Products) per head £	—	12 2 2	13 3 6	13 6 0	13 15 2
Total Exports per head £	18 4 11	14 9 10	15 19 2	16 15 5	17 3 1
Home Products per sq. mile £	—	13·36	15·04	15·70	16·41
Railways—					
Miles open & being constructed per 100,000 persons	179	376	333	346	348
Ditto per 10,000 sq. miles	15	37	38	41	
Population per mile open and being constructed	558	299	300	293	286
Cost of construction per mile open £	—	9479	7768·17	9234	9757*
Receipts per mile open £	—	776·07	823·25	795·71	833·78*
Ditto per train mile *s. d.*	—	6 1·68	6 1·89	5 11·39	5 9·84*
Profit per cent. to cost of construction	—	2·86	3·27	3·08	2·95*
Working Expenses per mile open £	—	501·63	515·70	510·02	543·93*
Ditto per train mile *s. d.*	—	3 11·63	3 10·29	3 9·74	3 9·60*
Ditto per cent. receipts	—	64·64	62·64	64·10	65·24*
Service train miles per mile open	—	2527·75	2673·66	2676·00	2859·89*
Ditto per head	—	6·76	7·36	7·88	8·37
Ditto per 100 square miles	—	746	840	931	999
Post Office—					
Letters, Newspapers, &c., per head mean population	—	77·89	72·53	82·50	82·42
Offices per 100 square miles	—	·17	·18	·19	·20
Telegraphs—					
Miles Poles per 100 sq. miles	0·88	1·25	1·24	1·25	1·41
Offices ditto	—	·06	·07	·08	·09
Agriculture—					
Acres under cultivation per head	3·39	4·16	4·11	2·43	2·45
Wheat, bushels per acre	9·35	11·87	7·34	10·98	9·28
Oats, ditto	25·79	27·29	24·29	28·72	25·62
Barley, ditto	19·12	21·70	18·87	22·19	18·56
Potatoes, tons per acre	3·26	4·68	3·70	3·88	3·96
Hay, ditto	1·15	1·26	·85	1·45	1·20
Wheat, bushels per head	11·59	13·64	7·26	11·38	8·71
Oats, ditto	3·72	4·58	4·15	5·68	4·19
Barley, ditto	1·07	·62	·82	1·01	0·74
Live Stock—					
Horses per square mile	0·39	·46	·47	·49	0·54
Cattle ditto	2·60	2·83	2·91	3·00	3·42
Sheep ditto	22·83	30·9	30·55	32·03	36·08

* Calculated on the actual number of miles in respect of which information has been given.
† Calculated on aggregate of mean population of financial year for the various Colonies.

SEVEN Colonies of Australasia, 1890.—Revenue.

Absolute.

	N. S. Wales.	Victoria.	Queensland.	S. Australia.	Western Australia.	Tasmania.	Total Australia & Tasmania.	N. Zealand.	Total Seven Colonies.
	£	£	£	£	£	£	£	£	£
Taxation.									
Customs	1,888,321	2,658,010	1,261,757	598,005	182,546	329,067	6,917,706	1,535,868	8,453,574
Excise	265,887	137,332	40,714	4522	...	15,636	464,091	58,035	522,126
Other Taxes	594,131	835,472	226,169	187,650	22,066	109,728	1,975,216	580,082	2,555,298
Total Taxation	2,748,339	3,630,814	1,528,640	790,177	204,612	454,431	9,357,013	2,173,985	11,530,998
Special Public Services.									
Railways and Tramways	3,013,921	3,134,066	882,762	1,080,104	48,629	102,642	8,262,124	1,143,989	9,406,113
Post and Telegraph	629,894	526,400	218,801	212,243	26,594	60,102	1,674,034	338,315	2,012,349
Other Public Services	531,123	265,075	52,313	153,280	23,420	24,803	1,050,014	...	1,050,014
Total Special Public Services	4,174,938	3,925,541	1,153,876	1,445,627	98,643	187,547	10,986,172	1,482,304	12,468,476
Lands, Buildings, Public Investments.									
Land Sales	1,170,794	442,583	50,273	72,237	33,842	47,319	1,816,048	154,584	1,970,632
Rentals	928,547	140,377	450,579	174,190	67,362	35,805	1,796,860	158,755	1,955,615
Investments, &c.	155,653	67,535	...	...	9541	10,617	243,346	...	243,346
Total Lands, Buildings, &c.	2,254,994	650,495	500,852	246,427	109,745	93,741	3,856,254	313,339	4,169,593
Other Sources of Revenue	320,349	312,309	166,855	75,541	1314	22,381	898,749	238,401	1,137,150
Total Revenue	9,498,620	8,519,159	3,350,223	2,557,772	414,314	758,100	25,098,188	4,208,029	29,306,217

SEVEN Colonies of Australasia, 1890.—Revenue.

Relative.

	N. S. Wales.		Victoria.		Queensland.		S. Australia.		Western Australia.		Tasmania.		Total Australia and Tasmania.		New Zealand.		Total Seven Colonies.	
	Per cent.	Per head.	Per cent.	Per head.	Per cent.	Per head.	Per cent.	Per head.	Per cent.	Per head.	Per cent.	Per head.	Per cent.	Per head.	Per cent.	Per head.	Per cent.	Per head.
Taxation.		*s. d.*		*s. d.*		*s. d.*		*s. d.*		*s. d.*		*s. d.*		*s. d.*		*s. d.*		*s. d.*
Customs	19·88	34·4	31·20	46·2	37·65	59·10	23·38	37·4	44·06	80·11	43·41	45·10	27·56	43·6	36·49	49·1	28·85	44·5
Excise	2·80	4·10	1·61	2·5	1·21	1·11	0·18	0·3	..	..	2·06	2·2	1·85	2·11	1·38	1·10	1·78	2·9
Other Taxes	6·26	10·10	9·81	14·6	6·75	10·9	7·33	11·9	5·32	9·9	14·47	15·3	7·87	12·5	13·79	18·7	8·72	13·5
Total Taxation	28·94	49·11	42·62	63·1	45·61	72·6	30·89	49·4	49·38	90·8	59·94	63·3	37·28	58·10	51·66	69·6	39·35	60·7
Special Public Services.																		
Railways	31·73	54·10	36·79	54·6	26·34	41·10	42·22	67·5	11·74	21·7	13·54	14·3	32·92	51·11	27·18	36·7	32·10	49·5
Post and Telegraph	6·63	11·6	6·18	9·2	6·53	10·5	8·30	13·3	6·42	11·9	7·93	8·4	6·67	10·6	8·04	10·10	6·87	10·7
Other Public Services	5·59	9·8	3·11	4·7	1·59	2·6	6·00	9·6	5·65	10·5	3·27	3·6	4·18	6·7	..	..	3·58	5·6
Total Special Public Services	43·95	75·9	46·08	68·3	34·46	54·9	56·52	90·2	23·81	43·9	24·74	26·1	43·77	69·0	35·22	47·5	42·55	65·6
Lands, Buildings, and Public Investments.																		
Land Sales	12·33	21·4	5·20	7·9	1·50	2·5	2·82	4·6	7·93	14·7	6·24	6·7	7·24	11·5	3·67	4·11	6·72	10·4
Rentals	9·77	16·10	1·65	2·5	13·45	21·4	6·81	10·11	16·26	29·10	4·72	5·0	7·16	11·4	3·78	5·1	6·67	10·3
Investments, &c.	1·64	2·10	0·79	1·2	..	..	..	..	2·30	4·3	1·40	1·5	0·97	1·6	..	..	0·83	1·4
Total Lands, Buildings, &c.	23·74	40·11	7·64	11·4	14·95	23·9	9·63	15·5	26·49	48·8	12·37	13·0	15·37	24·3	7·45	10·0	14·22	21·11
Other Sources of Revenue	3·37	5·10	3·66	5·5	4·98	7·11	2·96	4·8	0·32	0·7	2·95	3·2	3·58	5·8	5·67	7·8	3·88	5·11
	100·00	172·5	100·00	148·1	100·00	158·11	100·00	159·7	100·00	183·8	100·00	135·6	100·00	157·9	100·00	134·7	100·00	153·11

SEVEN Colonies of Australasia, 1890.—Revenue Expenditure.

Numerical.

	N. S. Wales.	Victoria.	Queensland.	S. Australia.	Western Australia.	Tasmania.	Total Australia & Tasmania.	N. Zealand.	Total Seven Colonies.
	£	£	£	£	£	£	£	£	£
General Administration.									
Executive and Legislative	70,939	74,282	17,369	32,428	1049	2950	199,017	32,949	231,966
Civil Establishment [a]	9600	166,471	214,979	71,495	5775	38,944	507,264	...	507,264
Pensions, Retiring Allowances	19,131	150,543	13,509	12,892	3193	14,663	213,931	40,728	254,659
Customs and Excise	63,145	124,132 [b]	52,150	22,526	8583	8588	279,124	36,403	315,527
Miscellaneous [a]	1,034,357	40,915	88,577	21,571	12,982	5879	1,204,281	...	1,204,281
Total General Administration	1,197,172	556,343	386,584	160,912	31,582	71,024	2,403,617	110,080	2,513,697
Law and Protection.									
Judicial and Legal	204,816	243,856	70,066	36,877	14,149	22,795	592,559	104,071	696,630
Police	289,088	265,149	161,622	87,338	35,214	22,783	861,194	92,640	953,834
Gaols, &c	111,949 [a]	71,146	28,368	15,102	16,115	7922	250,602	37,205	287,807
Defences	228,043	350,823	66,013	52,170	4013	12,699	713,761	75,851	789,612
Miscellaneous	22,925	...	...	...	1425	1828	26,178	...	26,178
Total Law and Protection	856,821	930,974	326,069	191,487	70,916	68,027	2,444,294	309,767	2,754,061
Religion, Science, and Education.									
Religion	9480	...	271,061	130,419	3543	1286	2,244,538	...	2,645,285
Science	18,917	20,672			1060	41,458		2863	
Education	726,102	1,008,542			11,994			397,884	
Total Religion, &c	754,499	1,029,214	271,061	130,419	16,597	42,744	2,244,538	400,747	2,645,285

Hospitals & Charitable Institutions.									
Medical Provision	13,282	16,915	110,547	5450	...	30,158	851,147	107,393	958,540
Hospitals, &c.	143,621	298,376		46,395	12,400				
Charities, &c.	94,254			34,849	8677	23,131			
Miscellaneous	8528	849		...	2970	745			
Total Hospitals, &c.	259,685	316,140	110,547	86,694	24,047	54,034	851,147	107,393	958,540
Public Works Services.									
Railway Working Expenses	2,043,168	2,511,106	639,597	567,663	62,270	110,227	5,934,031	725,332	6,659,363
Post and Telegraph	648,992	709,328	333,047	186,982	36,609	67,754	1,982,712	257,685	2,240,397
Crown Land Surveys	299,060	195,694[c]	101,412	68,327	15,702	14,351	694,546	91,456	786,002
Mines Department	121,981	137,291	28,127	6139	3522	6811	303,871	9279	313,150
Roads, Bridges, Jetties, and Harbours	986,306	652,006	146,247	185,323	24,668	49,351	2,043,901	166,097	2,209,998
Other Public Works	486,546	539,813	202,926	64,192	44,050	14,771	1,352,298	1,249,849	1,352,298
Total Public Works Services	4,586,053	4,745,238	1,451,356	1,078,626	186,821	263,265	12,311,359	1,640,289	13,561,208
Interest on Public Debt and Redemption of Loans	1,895,655	1,548,145	1,139,034	777,995	71,773	223,652	5,656,254	389,904	7,296,543
Other Expenses	...	519,683	...	153,125	...	...	672,808	...	1,062,712
Total Expenditure	9,549,885	9,645,737	3,684,655	2,579,258	401,736	722,746	26,584,017	4,208,029	30,792,046

[a] Includes £2090 paid for Gaol Chaplains. [b] Includes £35,166 for Harbour Lights. [c] Includes Department of Agriculture.

SEVEN Colonies of Australasia, 1890.—Revenue Expenditure.

Relative.

	PROPORTION PER CENT. OF TOTAL EXPENDITURE.								
	N. S. Wales.	Victoria.	Queensland.	S. Australia.	Western Australia.	Tasmania.	Australia and Tasmania.	N. Zealand.	Seven Colonies.
General Administration.									
Executive and Legislative	0·75	0·77	0·47	1·26	0·26	0·41	0·75	0·78	0·75
Civil Establishment[a]	0·10	1·73	13·51	2·77	1·44	5·39	3·72	0·97	3·35
Pensions & Retiring Allowances	0·20	1·56		0·50	0·79	2·03			
Customs and Excise	0·66	1·29	1·79	0·87	2·14	1·19	1·10	0·87	1.07
Miscellaneous[a]	10·83	0·42	...	0·84	3·23	0·81	4·20	...	3·62
Total General Administration	12·54	5·77	15·77	6·24	7·86	9·83	9·77	2·62	8·79
Law and Protection.									
Judicial and Legal	2·14	2 52	2·25	1·43	3·52	3·15	2·28	2·47	2·30
Police	3·03	2·75	4·72	3·39	8·77	3·15	3·29	2·20	3·14
Gaols, &c.	1·17	0·74	0·80	0·58	4·01	1·10	0·95	0·88	0·94
Defences	2·39	3·64	1·98	2·02	0·99	1·76	2·71	1·81	2·59
Miscellaneous	0·24	...	...	...	0·36	0·25	0·09	...	0·08
Total Law and Protection	8·97	9·65	9·75	7·42	17·65	9·41	9·32	7·36	9·05
Religion, Science, and Education.									
Religion	...	0·10	..	...	0·88	0·18	...	...	...
Science	...	0·20	0·16	...	0·26	5·73	...	0·06	...
Education	...	7·60	7·00	...	2·99		...	9·46	...
Total Religion, Science, &c.	8·57	7·90	7·16	5·06	4·13	5·91	8·42	9·52	8·57

Hospitals, Charitable Institutions.									
Medical Provision	0·14	0·18	0·17	0·21	...	4·17	...	...	...
Hospitals, &c.	1·50	3·09	1·17	1·81	3·09		...	...	...
Charities	0·99		2·40	1·35	2·16	3·20	...	...	...
Miscellaneous	0·09	0·01	...	...	0·74	0·11	...	...	...
Total Hospitals, &c.	2·72	3·28	3·74	3·37	5·99	7·48	3·31	2·55	3·20
Public Works and Services.									
Railway Working Expenses	21·39	26·03	17·35	22·01	15·50	15·25	22·32	17·24	21·63
Post and Telegraph	6·80	7·35	9·04	7·25	9·11	9·37	7·46	6·12	7·27
Crown Lands and Surveys	3·13	2·03	3·04	2·65	3·91	1·99	2·65	2·17	2·59
Mines Department	1·28	1·42	0·86	0·24	0·88	0·94	1·16	0·22	1·03
Roads, Bridges, Jetties, and Harbours	10·33	6·76	2·38	7·19	6·14	6·83	11·79	3·95	10·72
Other Public Works	5·09	5·60		2·48	10·97	2·05			
Total Public Works	48·02	49·19	32·67	41·82	46·51	36·43	45·38	29·70	43·24
Interest on Public Debt	19·85	16·05	30·91	30·16	17·86	30·94	21·27	38·98	23·70
Other Expenses	...	5·39	...	5·93	...	...	2·53	9·27	3·45
Total Expenditure	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00

Seven Colonies of Australasia, 1890.—Revenue Expenditure.

Relative.

	Per Head of Mean Population.								
	N. S. Wales.	Victoria.	Queensland.	S. Australia.	Western Australia.	Tasmania.	Australia and Tasmania.	N. Zealand.	Seven Colonies.
General Administration.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
Executive and Legislative	1 4	1 4	0 10	2 0	0 5	0 5	1 3	1 0	1 2
Civil Establishment[a]	0 2	2 11	10 2	4 5	2 7	5 5	6 3	1 4	2 8
Pensions & Retiring Allowances	0 4	2 7	0 7	0 10	1 5	2 1			1 4
Customs and Excise	1 2	2 2	2 6	1 5	3 10	1 2	1 10	1 2	1 8
Miscellaneous[a]	18 9	0 8	4 2	1 4	5 9	0 10	7 0	...	6 4
Total General Administration	21 9	9 8	18 3	10 0	14 0	9 11	16 4	3 6	13 2
Law and Protection.									
Judicial and Legal	3 9	4 3	3 4	2 4	6 3	3 3	3 10	3 4	3 8
Police	5 3	4 7	7 8	5 5	15 7	3 2	5 6	3 0	5 0
Gaols, &c.	2 0	1 3	1 4	0 11	7 2	1 1	1 7	1 2	1 6
Defences	4 2	6 1	3 1	3 3	1 9	1 9	4 6	2 5	4 2
Miscellaneous	0 5	...	...	...	0 8	0 3	0 2	...	0 2
Total Law and Protection	15 7	16 2	15 5	11 11	31 5	9 6	15 7	9 11	14 6
Religion, Science, and Education.									
Religion	0 2	...	...	...	1 7	0 2	...	...	...
Science	0 4	0 5	...	...	0 5	5 9	...	0 1	...
Education	13 2	17 6	...	...	5 4		...	12 9	...
Total Religion, Science, &c.	13 8	17 11	12 10	8 2	7 4	5 11	14 1	12 10	13 10

Hospitals, Charitable Institutions.									
Medical Provision	0 3	0 4	...	0 4	...	4 2	...	...	...
Hospitals, &c.	2 7	5 2	...	2 11	5 6		...	...	...
Charities	1 9		...	2 2	3 10	3 3	...	...	...
Miscellaneous	0 2	...	...	...	1 4	0 1	...	...	...
Total Hospitals, &c.	4 9	5 6	5 3	5 5	10 8	7 6	5 6	3 5	5 1
Public Works and Services.									
Railway Working Expenses	37 1	43 8	30 3	35 5	27 7	15 4	37 4	23 2	35 0
Post and Telegraph	11 9	12 4	15 9	11 8	16 3	9 5	12 6	8 3	11 9
Crown Lands and Surveys	5 5	3 5	4 10	4 3	7 0	2 0	4 5	2 11	4 2
Mines Department	2 3	2 5	1 4	0 5	1 7	1 0	1 11	0 4	1 8
Roads, Bridges, Jetties, and Harbours	17 11	11 4	6 11	11 7	10 11	6 10	19 8	5 4	11 7
Other Public Works	8 10	9 4	9 7	4 0	19 6	2 1			7 1
Total Public Works	83 3	82 6	68 8	67 4	82 10	36 8	75 10	40 0	71 3
Interest on Public Debt	34 4	26 11	53 11	48 6	31 10	31 1	35 7	52 5	38 4
Other Expenses	...	9 0	...	9 7	...	...	4 2	12 6	5 7
Total Expenditure	173 4	167 8	174 4	160 11	178 1	100 7	167 1	134 7	161 9

Seven Colonies of Australasia, 1890.—Loans Expenditure.

Aggregate up to and including Year 1890.

Numerical.

For construction of	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australia and Tasmania.	New Zealand.*	Seven Colonies of Australasia.
	£	£	£	£	£	£	£	£	£
Railways and Tramways ...	32,571,006	31,673,671	16,401,085	11,382,756	832,498	3,254,409	96,115,425	14,104,093	110,219,518
Telegraphs	735,493	..	806,824	839,722	234,741	101,549	2,718,329	606,648	3,324,977
Roads, Bridges, Jetties, Harbours	3,422,719	709,279	2,675,932	2,623,088	119,300	1,645,132	11,195,450	4,479,981	15,675,431
Public Buildings	1,377,907	1,919,319	842,320	692,663	42,901	553,419	5,428,529	1,780,785	7,209,314
Defences	864,582	98,299	151,584	230,906	..	116,591	1,461,962	*	1,461,962*
Water Supply and Sewerage.	4,574,848	6,565,404	251,526	2,826,416	7725	..	14,225,919	561,101	14,787,020
Other Public Works or purposes	4,061,215	..	4,354,699	1,290,098	138,215	519,591	10,363,818	5,446,674	15,810,492
Undefined, estimated *	..	..	..	..	..	..	..	9,724,753*	9,724,753
Total	47,607,770	40,965,972	25,483,970	19,885,649	1,375,380	6,190,691	141,509,432	36,704,035*	178,213,467
Year 1890.									
Railways and Tramways ...	1,190,502	2,933,087	1,026,665	281,302	1353	1,394,483	6,827,392	187,229	7,014,621
Telegraphs	8686	..	20,214	24,134	3105	4390	60,529	14,998	75,527
Roads, Bridges, Jetties, Harbours	229,746	9377	137,919	26,599	2434	190,842	596,917	71,608	668,525
Public Buildings	170,870	15,270	54,056	11,706	4967	33,366	290,235	26,668	316,903
Defences	89,391	..	13,421	1410	..	5200	109,422	..	109,422
Water Supply and Sewerage	452,024	796,271	30,356	140,813	1756	..	1,421,220	1038	1,422,258
Other Public Works and purposes	718,000	..	195,638	147,994	2291	..	1,063,923	44,266	1,108,189
Total	2,859,219	3,754,005	1,478,269	633,958	15,906	1,628,281	10,369,638	345,807	10,715,445
Balance of Loans unexpended	1,481,343	1,235,871	2,621,714	1,132,857	14,620	286,462	6,772,867	655,122	7,427,989

AGGREGATE UP TO AND INCLUDING YEAR 1890.

Centesimal Proportion.

FOR CONSTRUCTION OF	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Australia and Tasmania.	New Zealand.*	Seven Colonies.
Railways and Tramways ..	68·42	77·32	64·36	57·24	60·52	52·58	67·92	38·43*	61·84
Telegraphs	1·54	..	3·17	4·22	17·07	1·64	1·92	1·65	1·87
Roads, Bridges, Jetties, Harbours	7·19	1·73	10·50	13·19	8·68	26·58	7·91	12·21	8·80
Public Buildings	2·89	4·69	3·31	3·48	3·12	8·93	3·84	4·85	4·04
Defences	1·82	0·24	0·59	1·16	..	1·88	1·03	*	0·82
Water Supply and Sewerage	9·61	16·02	0·99	14·22	0·56	..	10·05	1·53	8·30
Other Public Works or purposes	8·53	..	17·08	6·49	10·05	8·39	7·33	14·84	8·87
Undefined, estimated*.....	..	..	..	.	..	..	..	26·49*	5·46
TOTAL	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
YEAR 1890.									
Railways	41·64	78·14	69·46	44·37	8·51	85·64	65·83	54·14	65·46
Telegraphs.....	0·30	..	1·37	3·81	19·52	0·27	0·58	4·34	0·71
Roads, Bridges, Jetties, Harbours	8·03	0·21	9·33	4·20	15·30	11·72	5·76	20·70	6·24
Public Buildings	5·98	0·41	3·65	1·85	31·22	2·05	2·80	7·72	2·96
Defences	3·13	..	0·91	0·22	.	0·32	1·06	..	1·02
Water Supply and Sewerage	15·81	21·24	2·05	22·21	11·04	..	13·71	0·30	13·27
Other Public Works or purposes	25·11	..	13·23	23·34	14·41	..	10·26	12·80	10·34
TOTAL	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00	100·00
Balance of Loans unexpended	..	..	..	..	..	..	..	..	..

* The defined expenditure from Loans in New Zealand does not include items prior to year 1870 expended under Provincial Governments, and only includes the "bulk" of Loans expenditure since that period. A reference to the Total Public Debt, £37,359,157, indicates that a sum of £9,734,753 is not included in the specified statement.

Tariff of Tasmania.

THE names of articles imported and exported are arranged in the general statistical tables—published in a separate volume—as nearly as possible in accordance with a natural system of classification recommended by the Intercolonial Statistical Conference held in Tasmania in January, 1875.

Formerly articles were arranged alphabetically in these tables without regard to natural alliance. In the classification now adopted alphabetical order is made subordinate to the natural relationship of the various articles, as indicated by the following abstract:—

CLASSIFICATION OF ENTRIES OF ARTICLES IMPORTED AND EXPORTED.

CLASS I.—ART AND MECHANIC PRODUCTIONS (SPECIFIC) OTHER THAN TEXTILE FABRICS AND DRESS.

Order 1. Books, &c.
" 2. Musical instruments.
" 3. Prints, pictures, &c.
" 4. Carving, figures, &c.
" 5. Tackle for sports and games.
" 6. Watches, philosophical instruments, &c.
" 7. Surgical instruments.
" 8. Arms, ammunition, &c.
" 9. Machines, tools, implements, &c.
" 10. Carriages, harness, &c.
" 11. Ships and boats and matters connected therewith.
" 12. Building materials.
" 13. Furniture.
" 14. Chemicals.

CLASS II.—TEXTILE FABRICS AND DRESS.

Order 15. Wool and worsted manufactures.
" 16. Silk manufactures.
" 17. Cotton and flax manufactures.
" 18. Manufactures of mixed materials.
" 19. Dress.
" 20. Manufactures of fibrous materials.

CLASS III.—FOOD, DRINKS, &c.

Order 21. Animal food.
" 22. Vegetable food.
" 23. Drinks and stimulants.

CLASS IV.—ANIMAL AND VEGETABLE SUBSTANCES.*

Order 24. Animal substances.
" 25. Vegetable substances.
" 26. Oils.†

CLASS V.—MINERALS AND METALS.

Order 27. Articles connected with mining.
" 28. Coal, &c.
" 29. Stone, clay, earthenware, and glass.
" 30. Water.
" 31. Gold, silver, specie, and precious stones.
" 32. Metals other than gold and silver not included in Class I.*

CLASS VI.—LIVE ANIMALS AND PLANTS.

Order 33. Animals and Birds.
" 34. Plants.

CLASS VII.—MISCELLANEOUS MATTERS.

Order 35. Miscellaneous articles of trade, &c.
" 36. Indefinite articles.

* Only raw materials or substances, undetermined as regards final specific use, classed within this division. † Mineral oils included.

As the various Orders are numbered consecutively in general tables published separately, the position of any article will be readily found by means of the following Index :—

ALPHABETICAL INDEX TO TARIFF ON IMPORTS.

Classified Order.	ARTICLES, AND IMPORT TARIFF.
No.	
1	Account books, 12½ per cent. *a.v.*
14	Acids, carbolic, citric, muriatic, sulphuric, exempt.
14	Acid, tartaric, 4*d.* lb.
9	Agricultural and horticultural machinery and implements, not otherwise enumerated, exempt.
25	Agricultural seeds, 12½ per cent.
23	Ale, beer, and porter of all kinds, in wood, 9*d.* per gallon.
23	Ditto, in bottle, 1*s.* 3*d.* per gallon, 6 reputed quarts or 1 doz. reputed pints to be taken as a gallon.
23	Aerated and mineral waters, 12½ per cent.
22	Almonds, 2*d.* lb.
14	Alum, exempt.
20	American leather cloth, exempt.
9	Anvils, exempt.
11	Anchors, ships', 12½ per cent. *a.v.*
33	Animals, living, Cattle and Sheep excepted, of every description, exempt.
19	Apparel, all kinds, 12½ per cent. *a.v.*
14	Apothecary's wares, 12½ per cent. *a.v.*
12	Architraves of wood, 20 per cent. *a.v.*
10	Arms, carriage, exempt.
32	Antimony, in ingots, exempt.
22	Arrowroot, 2*d.* lb.
14	Arsenic, crude, exempt.
3	Art, works of, (except for public institutions), 12½ per cent. *a.v.*
9	Axe handles, 10 per cent. *a.v.*
10	Axles, carriage, exempt.
3	Atlases, exempt.
21	Bacon, 2*d.* lb.
20	Bags, flour, corn, & bran, exempt.
20	Bags, ore, exempt.
20	Bags, gunny, free.
20	Bags, wool, 4*d.* each.
20	Bags, manufactured from hemp, jute, or cotton, 12½ per cent. *a.v.*
20	Bagging, manufactured, hemp, jute, and grey calicoes, 12½ per cent. *a.v.*
25	Bags, paper, without printing thereon, 12½ per cent. *a.v.*
20	Bags, empty (see Packages), exempt.
19	Baggage, passengers', except musical instruments and plate, if landed within six months before or after arrival of owner, exempt.
36	Ballast, exempt.
25	Bark, 12½ per cent. *a.v.*
22	Barley, patent, 12½ per cent. *a.v.*
22	Barley, pearl, ½*d.* lb.
22	Barley, Scotch, ½*d.* lb.
22	Barley, 10*d.* 100 lbs.
9	Basketware, lined or unlined, 12½ per cent. *a.v.*
25	Bass, exempt.
29	Bath bricks, 12½ per cent. *a.v.*
13	Bath chairs, 12½ per cent. *a.v.*
22	Beans, 10*d.* 100 lbs.
21	Beef, 1*s.* 6*d.* 100 lbs. gross.
9	Bellows, blacksmiths', exempt.
2	Bells, specially imported for churches or chapels, exempt.
11	Binnacle lamps, ships', 12½ per cent. *a.v.*
22	Biscuits, fancy, 2*d.* lb.
22	Biscuits, plain, 1*d.* lb.
14	Blacking, 12½ per cent. *a.v.*
25	Black Oil, exempt.
15	Blankets, 12½ per cent. *a.v.*
13	Blinds, Venetian, 12½ per cent. *a.v.*
25	Blue, 2*d.* lb.
14	Bluestone, exempt.
1	Board, mill, straw, and paste, exempt.
12	Boards, planed, tongued, and grooved, 5*s.* 100 super. feet.
11	Boats, boat oars, 12½ per cent. *a.v.*
9	Boilers, cast iron, 12½ per cent. *a.v.*
9	Boiler Plates, and raw material, including boiler mountings used in boiler making, not including bolts and screws, exempt.
32	Bolts, copper and yellow metal, exempt.
14	Bones, bone dust, exempt.
1	Books, printed, exempt.
1	Bookbinding cloth and leather, exempt.

Classified Order.	ARTICLES, AND IMPORT TARIFF.
No.	
19	Boots, shoes, and goloshes, 12½ per cent. *a.v.*
22	Bottled fruits, 3*d.* lb.
29	Bottles, quarter-pint and under, 12½ per cent. *a.v.*
29	Bottles, fancy, and decanters, 12½ per cent. *a.v.*
29	Bottles, not being fancy bottles or decanters, and being over one quarter-pint imperial measure, exempt.
35	Boxes, empty (see Packages), exempt.
10	Boxes, carriage, exempt.
11	Blocks, ships', 12½ per cent. *a.v.*
25	Bran, 10*d.* 100 lbs.
23	Brandy, 15*s.* gallon, no allowance for under-proof.
32	Brass, sheet and rolled, exempt.
9	Brassware, 12½ per cent. *a.v.*
29	Bricks, bath, 12½ per cent. *a.v.*
12	Bricks, building, 12½ per cent. *a.v.*
12	Bricks, fire, 12½ per cent. *a.v.*
12	Bridges, iron, 12½ per cent. *a.v.*
24	Bristles, unmanufactured, exempt
9	Brooms, hair and other, 12½ per cent. *a.v.*
9	Broom handles, 12½ per cent. *a.v.*
9	Brushes, 12½ per cent. *a.v.*
9	Buckets, 3*d.* each.
25	Bulbs, exempt.
31	Bullion, exempt.
21	Butter, 2*d.* lb.
13	Cabin furniture (see Passengers' Baggage).
13	Cabinet-makers' & upholsterers' materials, exempt.
2	Cabinet organs, 12½ per cent. *a.v.*
2	Cabinet organs, for churches and chapels, exempt.
9	Cabinet sewing machines, exempt.
11	Cables, chain, 12½ per cent. *a.v.*
13	Camp ovens, 12½ per cent. *a.v.*
22	Canary seed, ½*d.* lb.
22	Candied, bottled, and canned fruits and peels, 3*d.* lb.
24	Candles, 2*d.* lb.
17	Candle cotton, exempt.
25	Cane, exempt.
11	Canvas for sails, 12½ per cent. *a.v.*
23	Capers, 12½ per cent. *a.v.*
19	Caps, 12½ per cent. *a.v.*
14	Carbolate of lime, exempt.
14	Carbolic powder, exempt.
14	Carbonate of soda, 1*d.* lb.

Classified Order.	ARTICLES, AND IMPORT TARIFF.
No.	
1	Cards, playing, 12½ per cent. *a.v.*
1	Cardboard, uncut, exempt.
23	Carraway seeds, 12½ per cent. *a.v.*
10	Carriages, 2 wheels and springs, intended to be drawn by cattle on ordinary roads, £6 each.
10	Carriages on 4 wheels, £12 each.
10	Carriage shafts, spokes, naves, felloes, or poles, exempt.
15	Carpets and carpeting of every description, 12½ per cent. *a.v.*
10	Carriage axles, arms, and boxes, exempt.
8	Cartridges, 12½ per cent. *a.v.*
35	Cases, casks, empty (see Packages), exempt.
35	Casks, 12½ per cent. *a.v.*
32	Castings, rough iron, 1*s.* 6*d.* cwt. gross.
33	Cattle, 30*s.* per head.
12	Cements, mineral, 9*d.* cwt.
9	Chaff-cutters, 12½ per cent. *a.v.*
29	Chalk, exempt.
13	Chandeliers, 12½ per cent. *a.v.*
3	Charts and maps, exempt.
11	Chain cables, 12½ per cent. *a.v.*
21	Cheese, 2*d.* lb.
14	Chemicals, 12½ per cent. *a.v.*
23	Chicory, 4*d.* lb.
29	Chimney pots, earthenware, 12½ per cent.
29	Chinaware, 12½ per cent. *a.v.*
23	Chocolate, 3*d.* lb.
14	Chloralum, exempt.
14	Chloride of lime, exempt.
23	Cider, in wood, 1*s.* 3*d.* per gallon.
23	Cider, in bottle, 1*s.* 6*d.* per gallon.
23	Cigars and cigarettes, 6*s.* lb.
23	Cinnamon, 4*d.* lb.
29	Clay, fire, lumps, unmanufactured, exempt.
29	Clay, pipe, unmanufactured, exempt.
6	Clocks, all descriptions, 12½ per cent. *a.v.*
6	Clocks, specially imported for churches and chapels, exempt.
15-19	Cloth, not otherwise enumerated, 12½ per cent. *a.v.*
23	Cloves, 4*d.* lb.
28	Coals, 1*s.* ton.
28	Coals, Railways, exempt.
23	Cocoa, 3*d.* lb.
25	Cocoa fibre, exempt.
22	Cocoanuts, exempt.

Classified Order.	ARTICLES, AND IMPORT TARIFF.
No.	
25	Cocoanut oil, exempt.
23	Coffee (green), 3*d.* lb.
23	Coffee (roasted or ground), 4*d.* lb.
31	Coin, exempt.
20	Coir matting, 12½ per cent. *a.v.*
20	Coir, yarn, and unmanufactured, exempt.
28	Coke, 1*s.* ton.
9	Combs, 12½ per cent. *a.v.*
11	Compasses, ships', 12½ per cent.
22	Confectionery, 2*d.* per lb.
22	Confectionery, Ornaments for, 12½ per cent. *a.v.*
14	Copperas, exempt.
32	Copperware, 12½ per cent. *a.v.*
11	Copper or yellow metal rods, bolts, or sheathing, and nails, exempt.
32	Copper, plates or sheets, exempt.
25	Corks, and cork unmanufactured, exempt.
20	Cordage, exempt.
23	Cordials (see Spirits), 15*s.* gallon.
22	Corn flour, 1*d.* lb.
20	Corn bags, exempt.
25	Cotton, raw, waste, wick, and candle, exempt.
17	Cotton, manufactures of, 12½ per cent. *a.v.*
17	Cotton rugs, 12½ per cent. *a.v.*
14	Cream of tartar, 12½ per cent. *a.v.*
5	Cricketing materials, 12½ per cent. *a.v.*
29	Crockeryware, 12½ per cent. *a.v.*
9	Crucibles, 12½ per cent. *a.v.*
9	Cutlery, 12½ per cent. *a.v.*
11	Dead-eyes and rings for shipping, 12½ per cent. *a.v.*
9	Diamonds, glazing, 10 per cent.
11	Deadlights for shipping, 12½ per cent. *a.v.*
33	Dogs, exempt.
12	Doors made of wood, 20 per cent. *a.v.*
29	Draining pipes and tiles, 12½ per cent. *a.v.*
15-19	Drapery, 12½ per cent. *a.v.*
14	Drugs and druggists' wares, 12½ per cent. *a.v.*
14	Dyewood and dyestuffs, for manufacturing purposes only, exempt.
29	Earthenware, 12½ per cent. *a.v.*
No.	
29	Earthenware pipes for conveyance of water, 12½ per cent. *a.v.*
35	Emery cloth, powder, and paper, and sand paper, exempt.
9	Engines, hot air, exempt.
9	Engines, gas, exempt.
9	Engines, steam, exempt.
9	Engines, electric, exempt.
9	Engine packing, exempt.
9	Engine fittings, all articles used exclusively for, exempt.
9	Engineers' machine tools, exempt.
1	Envelopes, 12½ per cent. *a.v.*
14	Epsom salts, 12½ per cent.
23	Essence of lemon, 15*s.* per gall.
19	Feathers, 12½ per cent. *a.v.*
12	Felt for sheathing, exempt.
9	Fencing, wire, droppers, standards, and winders, exempt.
32	Fencing, iron, not otherwise specified, 12½ per cent.
12	Fire clay, lumps, fire bricks, exempt.
25	Firewood, 12½ per cent. *a.v.*
8	Fireworks, 12½ per cent. *a.v.*
21	Fish, fresh, exempt.
21	Fish, dried, 1*d.* per lb.
21	Fish in tins, 12½ per cent. *a.v.*
21	Fish, pickled, in barrels or kegs, 12½ per cent. *a.v.*
5	Fishing Tackle, 12½ per cent.
25	Flax, unmanufactured, exempt.
24-25	Flock, cotton and woollen, exempt.
22	Flour, wheaten, 1*s.* 3*d.* 100 lbs.
22	Flour, corn, 1*d.* per lb.
15-19	Forfar and grey calicoes, 12½ per cent. *a.v.*
9	Forks, agricultural, free.
9	Fork handles, 10 per cent. *a.v.*
22	Fruits—apples, pears, plums, quinces, peaches, apricots, cherries, gooseberries, raspberries, currants, and strawberries, 1*s.* per bushel.
22	Fruit, fresh, not otherwise enumerated, exempt.
22	Fruits, dried, 2*d.* lb.
22	Ditto, candied, bottled, and canned, 3*d.* per lb.
13	Furniture, manufactured of wood, 12½ per cent. *a.v.*
19	Furs, 12½ per cent. *a.v.*
32	Galvanised iron, in plain sheet, exempt.

Classified Order.	ARTICLES, AND IMPORT TARIFF.
No.	
8	Gasoline, 1*s.* 3*d.* per gallon.
32	Galvanised wire rope, exempt.
13	Gasaliers, 12½ per cent. *a.v.*
25	Gilt mouldings made of wood, for picture frames, 20 per cent. *a.v.*
23	Gin, Geneva, 15*s.* gallon, no allowance for underproof.
23	Ginger, preserved in syrup, 1*d.* per lb.
23	Ginger, dried, whole or ground, 4*d.* lb.
29	Glass, plate, crown and sheet, and glass of every description, 12½ per cent. *a.v.*
23	Ginger, preserved, dry, 12½ per cent.
29	Glass, silvered, 12½ per cent. *a.v.*
29	Glassware, 12½ per cent. *a.v.*
6	Globes, exempt.
15-19	Gloves, kid, and all gloves manufactured from skins, 12½ per cent. *a.v.*
24	Glue, 1*d.* lb.
24	Glucose, 6*s.* per cwt.
31	Gold (see Plate), 20 per cent. *a.v.*
31	Gold, in bars, sheet, or dust, exempt.
22	Grain and Pulse of every description, including maize, pollard, & sharps, 10*d.* 100 lbs.
29	Granite in rough block, exempt.
22	Grapes, exempt.
35	Grindery, viz., all articles used exclusively in bootmaking and shoemaking, exempt; other, 12½ per cent.
29	Grindstones, 12½ per cent.
22	Groats, patent, 12½ per cent. *a.v.*
24	Grease, exempt.
14	Guano, exempt.
20	Gunnies, exempt.
8	Gunpowder for blasting, 1*d.* lb.
8	Gunpowder, all other kinds, 6*d.* lb., except FFF loose, 1*d.* lb.
8	Guns and fowling-pieces, 12½ per cent. *a.v.*
15-19	Haberdashery, 12½ per cent. *a.v.*
24	Hair, unmanufactured, exempt.
9	Hair brooms, 12½ per cent. *a.v.*
24	Hair-cloth for hop-kilns, exempt.
10	Halters, 12½ per cent. *a.v.*
21	Hams, 2*d.* lb.
9	Handles, axe, fork, and spade, 10 per cent. *a.v.*
9	Handles, rake, 12½ per cent. *a.v.*
9	Hardware, 12½ per cent. *a.v.*

Classified Order.	ARTICLES, AND IMPORT TARIFF.
No.	
2	Harmoniums, 12½ per cent. *a.v.*
2	Harmoniums for churches and chapels, exempt.
10	Harness, 12½ per cent. *a.v.*
9	Harrows, horse hoes, horse rakes, ploughs, & scarifiers, 5 per cent.
9	Harvest yarn, rope yarn, and binding wire, exempt.
15-19	Hats, 12½ per cent. *a.v.*
15-19	Hatters' material; viz., all articles prepared for and used exclusively by hatters, exempt.
25	Hay, 12½ per cent.
18	Hearth-rugs, 12½ per cent. *a.v.*
25	Hempseed, ½*d.* lb.
25	Hemp, unmanufactured, exempt.
25	Hemp, manufactured for bagging, 12½ per cent. *a.v.*
21	Herrings, Red, 1*d.* per lb.
24	Hides, dressed, 12½ per cent. *a.v.*
24	Hides, raw and unmanufactured, exempt.
9	Hoes, agricultural, 5 per cent. *a.v.*
9	Holloware, of iron only, 12½ per cent. *a.v.*
23	Hops, 2*d.* lb.
21	Honey, 2*d.* per lb.
33	Horses, exempt.
15-19	Hosiery, 12½ per cent. *a.v.*
30	Ice, exempt.
25	Indiarubber antirattlers and buffers, exempt.
32	Ingots, sheets or plates of copper, brass, bronze, and zinc, exempt.
14	Ink, except printing, 12½ per cent. *a.v.*
25	Ink, printing, exempt.
6-7	Instruments, scientific, optical, and surgical, 12½ per cent.
32	Iron, galvanised, and zinc sheet or piping, ridge-caps or spouting, 12½ per cent. *a.v.*
32	Iron, rod, bar, hoop, sheet, plate and pig, exempt.
32	Iron fencing, not otherwise specified, 12½ per cent.
9	Ironmongery, all kinds, 12½ per cent. *a.v.*
21	Isinglass, 12½ per cent. *a.v.*
9	Implements and tools, agricultural and horticultural, not otherwise enumerated, exempt.
9	Iron retorts and rough iron castings, 1*s.* 6*d.* cwt. gross.
24	Ivory black and unmanufactured, exempt.

Classified Order.	ARTICLES, AND IMPORT TARIFF.
No.	
29	Jars for jam, glass, or earthenware, 12½ per cent. *a.v.*
31	Jewelry and trinkets, wholly or in part of gold or silver, 20 per cent. *a.v.*
9	Jewellers' and watchmakers' tools, exempt.
25	Jute, unmanufactured, exempt.
25	Jute manufactured for bagging, 12½ per cent. *a.v.*
25	Kapock, exempt.
19	Kid gloves, 12½ per cent. *a.v.*
9	Knives, putty, shoemakers', hay, saddlers', and pruning, exempt.
14	Kreosote, crude, exempt.
14	Lamp-black, exempt.
9	Lamps, 12½ per cent. *a.v.*
11	Lamps, ships' signal and binnacle, 12½ per cent. *a.v.*
21	Lard, 2*d.* lb.
32	Lead, milled, sheet, or piping, 2*s.* 6*d.* cwt.
32	Lead, red and white, ½*d.* lb.
32	Lead, pig, ore, & scrap, exempt.
22	Lemons, exempt.
24	Leather, 12½ per cent. *a.v.*
24	Leather goods, 12½ per cent. *a.v.*
24	Leather, viz., Morocco, Levant, glove, kid, patent calf, goat Levant, coloured roan, calf kid, mock kid, glacé kid, enamelled hide for buggy tops, and dash leather, exempt.
14	Lime, carbolate of, exempt.
14	Lime, chloride of, exempt.
23	Limejuice, 12½ per cent.
15-19	Linen, manufactures of, 12½ per cent. *a.v.*
25	Linoleum, 12½ per cent. *a.v.*
25	Linseed, ½*d.* lb.
25	Linseed meal, ½*d.* lb.
25	Linseed oilcake, exempt.
22	Liquorice, 2*d.* lb.
23	Liquors (see Spirits).
29	Lithographic stones, 10 per cent. *a.v.*
14	Logwood, exempt.
13	Looking-glasses, 12½ per cent. *a.v.*
22	Macaroni, 2*d.* lb.
9	Machines, sewing, exempt.
9	Machines and machinery of every description, not workable by hand, and not otherwise enumerated, exempt.
9	Machinery of every description, not otherwise enumerated, 12½ per cent. *a.v.*
1	Magazines, reviews, and pamphlets, exempt.
22	Maize, 10*d.* 100 lbs.
22	Maizena, 1*d.* per lb.
23	Malt, 1*s.* bushel.
23	Malt liquors, in wood, 9*d.* gallon
23	Malt liquors, in bottle, 1*s.* 3*d.* gallon, six reputed quarts or one dozen reputed pints to be taken as a gallon.
14	Manures of every description, exempt.
29	Marble, rough, in block, exempt.
3	Maps and charts, exempt.
14	Matches, lucifer, 1*s.* cubic foot. Ditto, wax vestas, 3*s.* cubic foot.
20	Matting of every description and manufacture, 12½ per cent. *a.v.*
29	Memorial windows for churches or chapels, exempt.
1	Millboards, exempt.
19	Millinery, 12½ per cent. *a.v.*
29	Mill-stones, exempt.
29	Mill-silk, exempt.
22	Molasses, 3*s.* 6*d.* cwt.
22	Molasses, raw, for manufacturing purposes, rendered unfit for human consumption, exempt.
9	Mop handles, 12½ per cent. *a.v.*
9	Mops, woollen and cotton, 12½ per cent. *a.v.*
9	Mould-boards, or mould-shares, exempt.
12	Mouldings made of wood, 20 per cent. *a.v.*
32	Muntz metal, exempt.
1	Music, printed, exempt.
2	Musical instruments of every description, 12½ per cent. *a.v.*
23	Mustard, 2*d.* lb.
21	Mutton, 1*s.* 6*d.* 100 lbs. gross.
25	Myrobalans, exempt.
9	Nails, iron, except screw nails, 2*s.* 6*d.* cwt. gross.
9	Nails, yellow metal or copper, exempt.
14	Naphtha, 1*s.* per gall.
1	Newspapers, exempt.
23	Nutmegs, 4*d.* lb.
22	Nuts, except cocoanuts, 2*d.* per lb.
9	Nuts and bolts, iron, 2*s.* 6*d.* cwt.

Classified Order.	ARTICLES, AND IMPORT TARIFF.
No.	
11	Oars for boats, 12½ per cent.
25	Oakum and junk, exempt.
22	Oatmeal, ½*d.* lb.
22	Oats, 10*d.* 100 lbs.
22	Oil-cake, exempt.
18	Oil cloth, oil baize, 12½ per cent *a.v.*
35*	Oilmen's stores, except pickles, sauces, and oils, 12½ per cent. *a.v.*
26	Oils, not otherwise enumerated, 1*s.* 3*d.* per gallon.
26	Oil, kerosene, 1*s.* per gallon.
14	Oils, medicinal & perfumed, 12½ per cent. *a.v.*
26	Oils, whale, palm unrefined, refuse shale, exempt.
26	Oils, cod and sod, for tanning purposes, exempt.
22	Onions, 1*s.* per cwt.
14	Opium, 20*s.* per lb.
22	Oranges, exempt.
32	Ores of all kinds of metals, exempt.
2	Organs, 12½ per cent. *a.v.*
2	Organs, cabinet, 12½ per cent. *a.v.*
2	Organs and cabinet organs, for churches and chapels, exempt.
13	Ovens, camp, 12½ per cent. *a.v.*
20-25	Packages, all empty, casks, cases, boxes, bags, on proof of Collector of Customs that they have been used in the export of Tasmanian produce, exempt.
20	Packs, wool, 4*d.* each.
3	Paintings and engravings, for Public Institutions, exempt.
14	Paints of every description, ½*d.* lb.
25	Palm oil, unrefined, exempt.
25	Paper for fruit wrapping, not exceeding 8 inches by 10 inches, exempt.
25	Paper, viz., all writing paper, and white and coloured printing paper, without printing or ruling thereon, imported in original wrappers, and untrimmed edges, as it leaves the mill, 5 per cent. *a.v.*
25	Paper, room, 12½ per cent. *a.v.*
25	Paper, glass and sand, 12½ per cent. *a.v.*
26	Parafine and mineral wax, exempt.

Classified Order.	ARTICLES, AND IMPORT TARIFF.
No.	
13	Passengers' baggage and cabin furniture, except musical instruments and plate, arriving in the Colony at any time within six months before or after the owner thereof, also household furniture and effects, the same having been in the owner's use for a period of not less than six months before the removal to Tasmania, such furniture and effects not being for sale, exempt.
19	Passengers' baggage (see Baggage).
22	Peas, 10*d.* per 100 lbs.
22	Peas, split, ½*d.* lb.
23	Pepper, black, 2*d.* lb.
23	Pepper, white, 2*d.* per lb.
23	Perfumed spirits, 24*s.* gallon.
14	Phosphorus, exempt.
23	Perfumery and perfumed oils, 12½ per cent. *a.v.*
23	Perry, 1*s.* 3*d.* in wood, 1*s.* 6*d.* in bottle, per gallon.
3	Photographs, framed or unframed, 12½ per cent. *a.v.*
2	Pianofortes, 12½ per cent. *a.v.*
23	Pickles, in bottles—Quarts, 3*s.* dozen; pints, 2*s.* dozen; in half-pints, 1*s.* 4*d.* per dozen.
3	Pictures, framed or unframed, 12½ per cent. *a.v.*
33	Pigs, exempt.
22	Pineapples, exempt.
29	Pipeclay, unmanufactured, exempt.
4	Pipes, clay, 12½ per cent. *a.v.*
32	Pipes, iron, not being made of galvanised iron plain sheeting, exempt.
29	Pipes, draining, and earthenware for conveyance of water, 12½ per cent. *a.v.*
29	Pottery materials, viz., litharge, China clay, Cornish stone, felspar, manganese, and oxide of cobalt, exempt.
8	Pistols, 12½ per cent. *a.v.*
25	Pitch, exempt.
34	Plants, trees, and shrubs, exempt.
29	Plaster of Paris, 12½ per cent.
29	Plate glass, 12½ per cent. *a.v.*

* Specific articles to be properly defined and classed where possible.

Classified Order.	ARTICLES, AND IMPORT TARIFF.
No.	
31-32	Plate and plated-ware, of every description, 20 per cent. *a.v.*
10	Plough-traces, 12½ per cent. *a.v.*
22	Pollard, 10*d.* per 100 lbs.
25	Polish of all kinds, 1*s.* 6*d.* gallon, except French polish
21	Pork, in pieces under 5 lbs., 10 per cent. *a.v.* Ditto, 5 lbs. and over, 2*d.* per lb.
14	Potash and pearlash, exempt.
22	Potatoes, 6*d.* per cwt.
9	Pots, iron, 12½ per cent. *a.v.*
33	Poultry, live, exempt.
22	Preserves, jams, and jellies, 1*d.* per lb.
9	Printing presses, types and materials, exempt.
22	Prunes, 2*d.* per lb.
22	Pulse, 10*d.* 100 lbs.
25	Pulu, exempt.
32	Railway or tramway material: viz., rails, fish-plates, bolts, spikes, or other fastenings, springs, wheels, axles, exempt.
19	Regalia and banners specially imported by Friendly Societies, exempt.
9	Rakes, agricultural, 5 per cent. *a.v.*
9	Rake handles, 12½ per cent. *a.v.*
25	Rape seed, ½*d.* lb.
25	Rattans, split or unsplit, exempt.
9	Rabbit-proof wire netting, being 3 feet to 4 feet wide, 1½-inch and 1⅝ in. mesh, and 17 gauge, exempt.
9	Rabbit traps, phosphorisers, or any machine used for destroying rabbits, exempt.
25	Resin, exempt.
9	Rough iron castings, 1*s.* 6*d.* per cwt. gross.
22	Rice, ½*d.* lb.
32	Rivets, iron, 12½ per cent. *a.v.*
25	Room paper, 12½ per cent. *a.v.*
20	Rope and cordage of every description, and wire rope, exempt.
18	Rugs, woollen and cotton, 12½ per cent. *a.v.*
15	Rugs, hearth, 12½ per cent. *a.v.*
23	Rum, 15*s.* gallon, no allowance for underproof.
20	Sacks, corn, exempt.
No.	
10	Saddlery of every description, 12½ per cent. *a.v.*
10	Saddlers' ironmongery, not plated, exclusively used in manufacture of saddlery, exempt.
10	Saddlers' materials—chaise cart, gig, buggy, and riding saddle trees, hog skins, saddle nails, dees and staples, patent winker leather, exempt.
22	Sago, 2*d.* lb.
11	Sail canvas, 12½ per cent. *a.v.*
23	Salt, 1*s.* 6*d.* cwt.
23	Saltpetre, 12½ per cent. *a.v.*
23	Salt, rock, exempt.
29	Sand, for moulding, exempt.
25	Sand paper and glass paper, exempt.
12	Sashes made of wood, 20 per cent. *a.v.*
14	Sash weights, 1*s.* 6*d.* per cwt.
16	Satin of every description, 12½ per cent. *a.v.*
23	Sauces in bottles, quarts, 4*s.* dozen.
23	Sauces in bottles, pints, 3*s.* dozen.
23	Ditto half pints, 2*s.* dozen.
23	Sauces in bottle, quarter pints, 1*s.* 6*d.* per dozen, and so in proportion for any greater or less quantity than a dozen of each size.
23	Sauces in bulk, 3*s.* gallon.
35	Scale-board, exempt.
32	Screw nails, 12½ per cent. *a.v.*
9	Scythe handles, 10 per cent. *a.v.*
25	Seeds, garden, exempt.
9	Sewing machines of every description, exempt.
9	Share moulds, exempt.
22	Sharps, 10*d.* per 100 lbs.
15-19	Shellac, exempt.
33	Sheep or lambs, 1*s.* 6*d.* per head.
14	Sheep dip, 10 per cent. *a.v.*
9	Sheep shears, exempt.
25	Shoe thread, 12½ per cent. *a.v.*
19	Shoes and boots, 12½ per cent. *a.v.*
8	Shot, 1*d.* lb.
9	Shovels, exempt.
34	Shrubs and plants, exempt.
20	Silk, unmanufactured, exempt.
16	Silk, manufactures of, 12½ per cent. *a.v.*

Classified Order.	ARTICLES AND IMPORT TARIFF.
No.	
31	Silver, in bar, ingot, or sheet, exempt.
24	Skins, dressed, 12½ per cent. *a.v.*
24	Skins, raw and unmanufactured, exempt.
12	Skirtings, made of wood, 20 per cent. *a.v.*
1	Slate pencils, 12½ per cent. *a.v.*
1	Slates, school, 12½ per cent. *a.v.*
29	Slate in block, exempt.
12	Slates, roofing and flagging, 12½ per cent. *a.v.*
23	Snuff, 6*s.* lb.
24	Soap, not perfumed or fancy, 1*d.* lb.
24	Soap, perfumed and fancy, 3*d.* lb.
14	Soda crystals, ½*d.* lb.
14	Soda, carbonate of, 1*d.* lb.
14	Soda, nitrate of, exempt.
14	Soda ash, exempt.
14	Soda, caustic, and silicate of, exempt.
32	Solder and soldering fluid, exempt.
9	Spades, exempt.
9	Spade and shovel handles, 10 per cent. *a.v.*
36	Specimens of natural history, mineralogy, botany, exempt.
23	Spices of all kinds, 4*d.* lb.
23	Spirits,—viz., brandy, cordials, rectified spirits, and all other liquors or strong waters, Geneva, gin, rum, whisky, 15*s.* gallon, no allowance for underproof.
14	Spirits, methylated, taken as proof, containing not less than 10 per cent. of methyle alcohol, and so in proportion for any quantity less than one-sixth of a gallon, 3*s.* per gallon.
23	Spirits, perfumed, 24*s.* gallon.
14-23	Spirituous compounds, 15*s.* per gallon proof, no allowance for under proof.
14	Spirits of tar, 6*d.* gallon.
12	Spouting, galvanised iron and zinc, 12½ per cent. *a.v.*
25	Starch, 1*d.* lb.
1	Stationery, 12½ per cent. *a.v.*
3	Statuary, 12½ per cent. *a.v.*
24	Stearine, exempt.
32	Steel, unmanufactured, exempt.
29	Stone in rough block, exempt.
21	Suet, tallow and grease, exempt.
22	Sugar candy, 2*d.* lb.

Classified Order.	ARTICLES, AND IMPORT TARIFF.
No.	
22	Sugar (loaf and crushed), 1*d.* lb; all other kinds, 6*s.* cwt.
14	Sulphur, 12½ per cent.
14	Sulphate of copper, exempt.
14	Sulphate of magnesia, exempt.
25	Sumac, exempt.
3	Tablets, memorial, exempt.
24	Tallow, exempt.
9	Tanks, iron, 12½ per cent. *a.v.*
22	Tapioca, 2*d.* lb.
25	Tar, spirits of, 6*d.* gallon.
25	Tar, exempt.
26	Tar oil, 1*s.* 3*d.* per gall.
14	Tartaric acid, 4*d.* lb.
23	Tea, 3*d.* per lb.
14	Terra japonica, exempt.
23	Tannin and tannin extract, exempt.
32	Tinfoil, exempt.
29	Tiles, draining, 12½ per cent. *a.v.*
12	Tiles, kiln, flooring, 12½ per cent. *a.v.*
25	Timber in log, exempt.
25	Timber, sawn, 3 inches and over, exempt.
25	Timber, sawn, under 3 inches, 2*s.* 6*d.* 100 super. feet.
32	Tin and tin plates, unmanufactured, exempt.
23	Tobacco, 3*s.* per lb.; unmanufactured, 2*s.* per lb.
9	Tools, boring and edge, and all tools and implements for manufacturing purposes not otherwise enumerated, exempt.
5	Toys, 12½ per cent. *a.v.*
25	Tow, exempt.
9	Traction engines and their carriages, exempt.
34	Trees, exempt.
22	Treacle, 3*s.* 6*d.* per cwt.
9	Tubs, 12½ per cent. *a.v.*
14	Turpentine, 1*s.* gallon.
15-19	Tweeds of every description, 12½ per cent. *a.v.*
20	Twine of all kinds, whipcord, and other cords, 1*d.* lb.
9	Type, printing, exempt.
19	Umbrellas, 12½ per cent. *a.v.*
12	Veneer, wood, exempt.
25	Valonia, exempt.
25	Varnish and polish of all kinds, not otherwise enumerated, 1*s.* 6*d.* gallon.
22	Vegetables, not otherwise enumerated, 12½ per cent.
14	Vegetable black, exempt.

Classified Order.	ARTICLES, AND IMPORT TARIFF.
No.	
16	Velvets, 12½ per cent. *a.v.*
13	Venetian blinds, 12½ per cent. *a.v.*
22	Vermicelli, 2*d.* lb.
23	Vinegar, 9*d.* gallon.
25	Wadding, 12½ per cent. *a.v.*
22	Walnuts and other nuts, 2*d.* lb.
6	Watches of every description, 20 per cent. *a.v.*
14	Wax vestas, 3*s.* cubic foot.
11	Whaling implements and gear, exempt.
24 } 26 }	Whalebone, whale fins, from whale fisheries, exempt.
22	Wheat, 10*d.* per 100 lbs.
20	Whipcord, 1*d.* per lb.
10	Whips and whipthongs, 12½ per cent. *a.v.*
23	Whisky, 15*s.* gallon, no allowance for underproof.
29	Whiting, 9*d.* cwt.
9	Wickerware, lined and unlined, 12½ per cent. *a.v.*
3	Windows, memorial, for churches and chapels, exempt.
23	Wines, in wood, 6*s.* gallon.
23	Wines, in bottles, 8*s.* gallon, six reputed quarts or one dozen reputed pints to be taken as a gallon.
23	Wines, sparkling, 10*s.* gallon.
32	Wire, not otherwise specified, 12½ per cent. *a.v.*
32	Wire, binding, for agricultural machinery, exempt.
24	Wool, unmanufactured, exempt.
20	Wool bags, 4*d.* each.
15	Woollen manufactures, 12½ per cent. *a.v.*
15	Woollen rugs, 12½ per cent. *a.v.*
24	Woollen waste, exempt.
3-4	Works of art, for Public Institutions, exempt.
9	Workboxes and desks, 12½ per cent. *a.v.*
25	Wrapping paper, except for fruit, 12½ per cent. *a.v.*
9	Windmills, exempt.
11	Yellow metal rods, bolts, or sheathing, and yellow metal nails, exempt.
32	Zinc, sheets or plates, exempt.
	All goods the produce of Tasmania, exempt.
	All goods imported for the use of Her Majesty's Government, exempt.

POPULATION STATISTICS, TASMANIA, 1891.

	1891.*	1890.	1891 as compared with 1890.	
			Increase.	Decrease.
	No.	No.	No.	No.
Area, sq. miles	26,215	26,215	...	...
Population on 31st December	152,619	145,290	7329	...
Ditto, mean for the year	148,955	143,734	5221	...
Births—				
Males	2510	2466	40	...
Females	2461	2347	117	...
TOTAL	4971	4813	157	...
Deaths—				
Males	1321	1216	105	...
Females	913	902	11	...
TOTAL	2234	2118	116	...
Marriages	988	954	34	...
Immigration—				
Males	18,129	18,905	...	776
Females	9186	10,612	...	1426
TOTAL	27,315	29,517	...	2206
Emigration†—				
Males	14,992	16,699	...	1707
Females	7727	10,371	...	2644
TOTAL	22,719	27,070	...	4351
Migration—				
Excess of Immigration over Emigration	4596	2447	2149	...
Population per square mile, 31st December	5·80	5·54	0·26	...
Births per 1000 of mean Population	33·37	33·49	...	0·12
Deaths, ditto	15·00	14·74	0·26	...
Marriages, ditto	6·63	6·64	...	0·01

* Subject to revision.

† The error discovered between the estimated population and the actual population, as ascertained by the Census of 1891, amounted to 7 per cent. This is explained by the Emigration having been under-estimated to this extent. In the above figures, therefore, a corresponding allowance for unrecorded Emigration has been made.

MISCELLANEOUS PARTICULARS.

	£
Total Exports, Year 1891	1,440,818
Total Imports, ditto	1,897,512
Value Wool exported, ditto	418,460
Value Tin exported, ditto	291,863
Value Gold exported, ditto	133,013
Value Silver exported, ditto	6292
Public Debt, 31st December, 1891	7,110,290

POPULATION OF AUSTRALASIA ON 31st DECEMBER, 1891.

New South Wales	1,165,300
Victoria	1,157,804
Queensland	410,345
South Australia	320,723
West Australia	53,285
Tasmania	152,619
New Zealand	634,058
Total	3,894,134

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